以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效

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率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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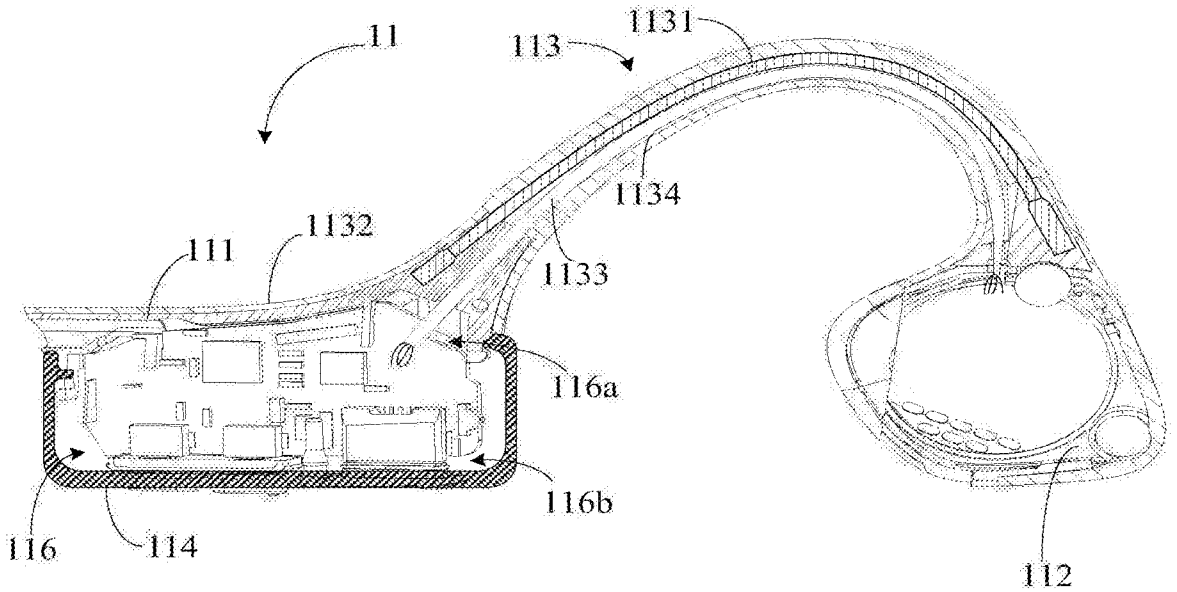


图1

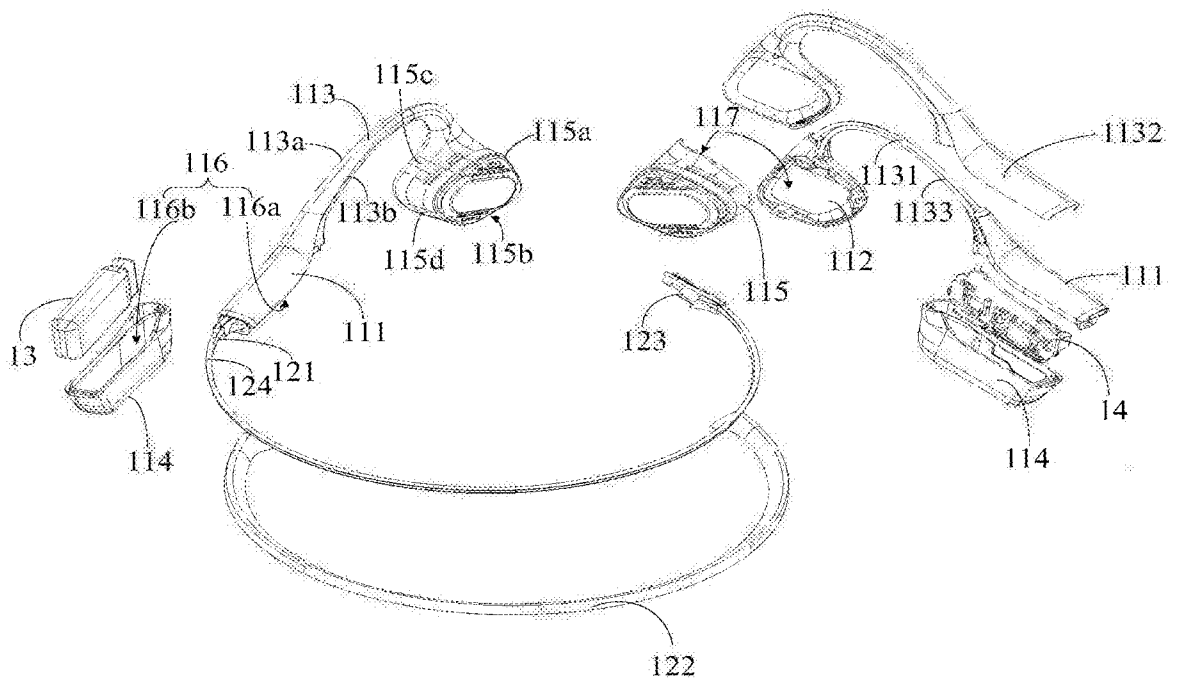


图2

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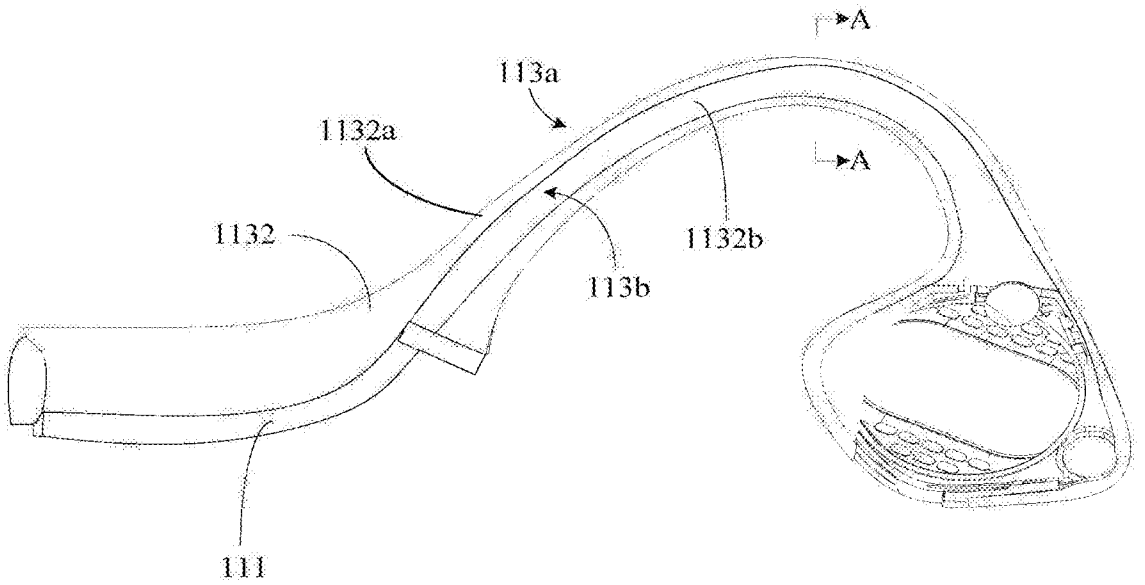


图3

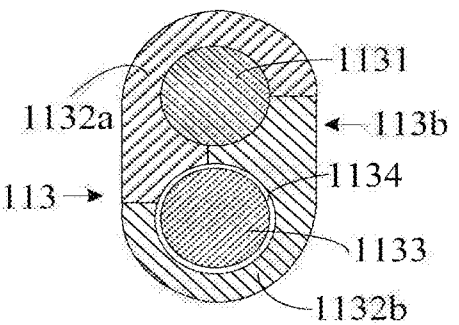


图4

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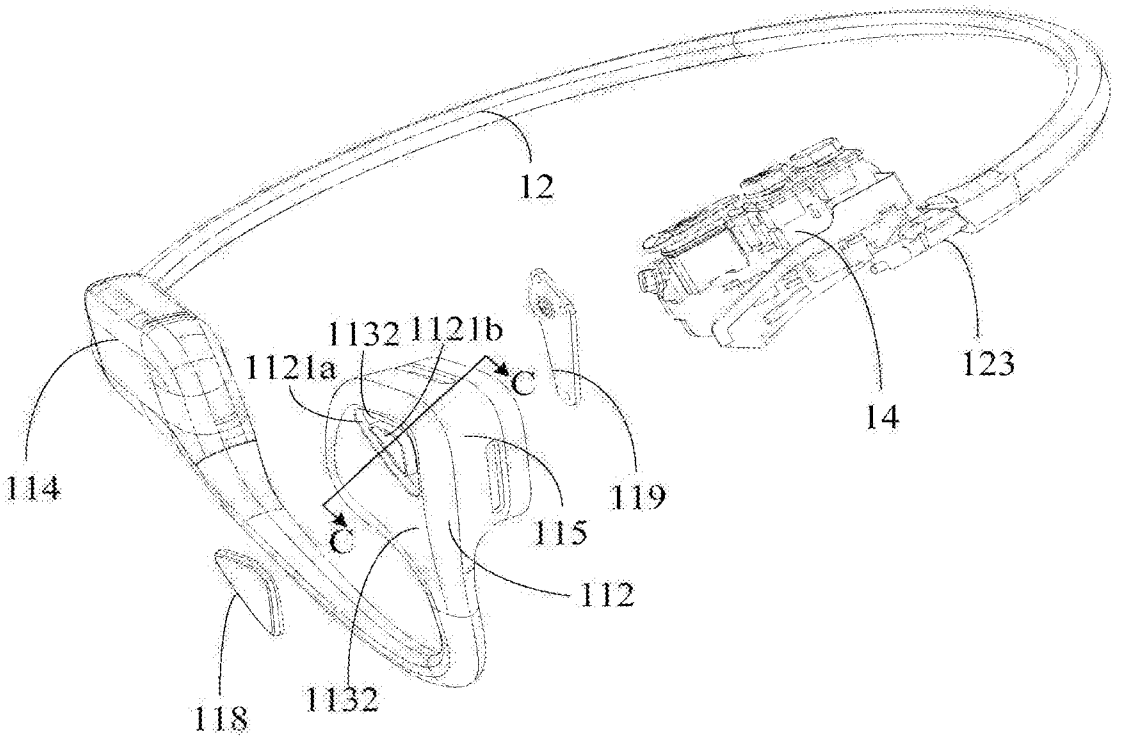


图5

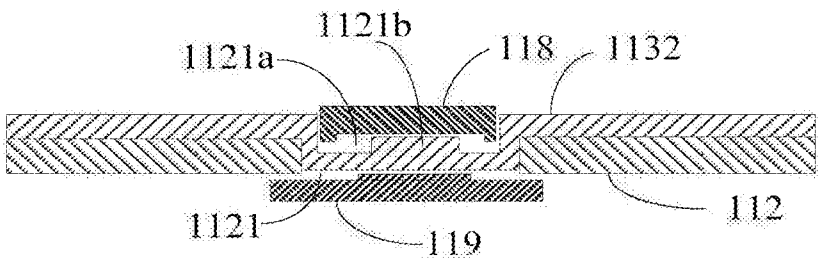


图6

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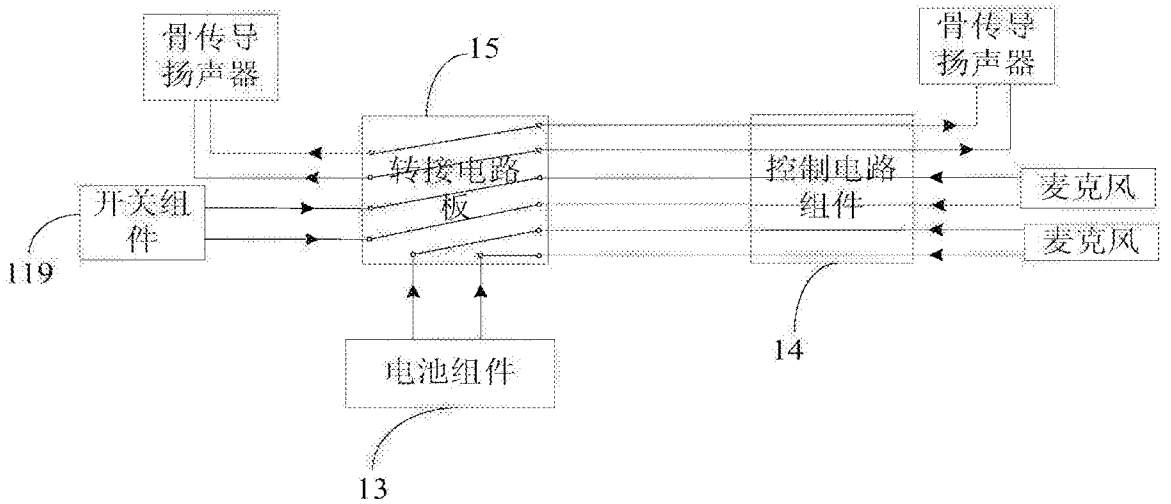


图7

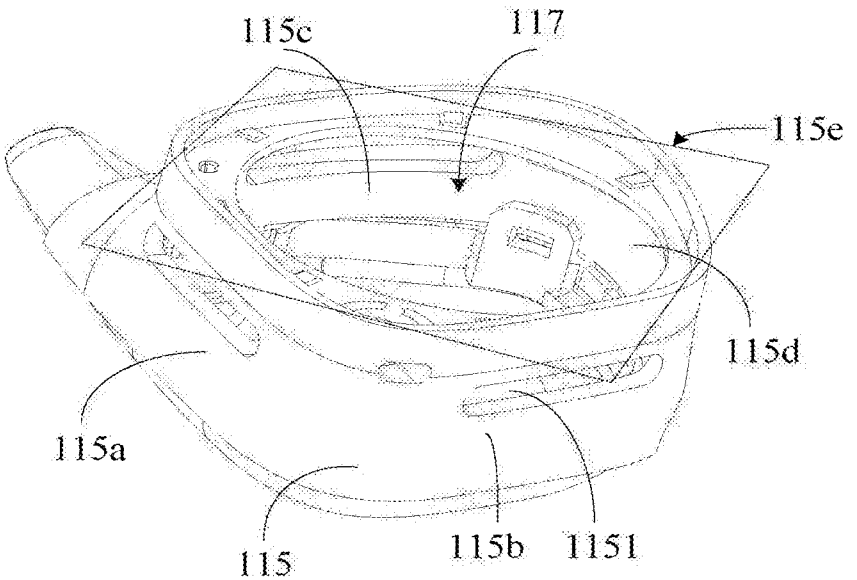


图8

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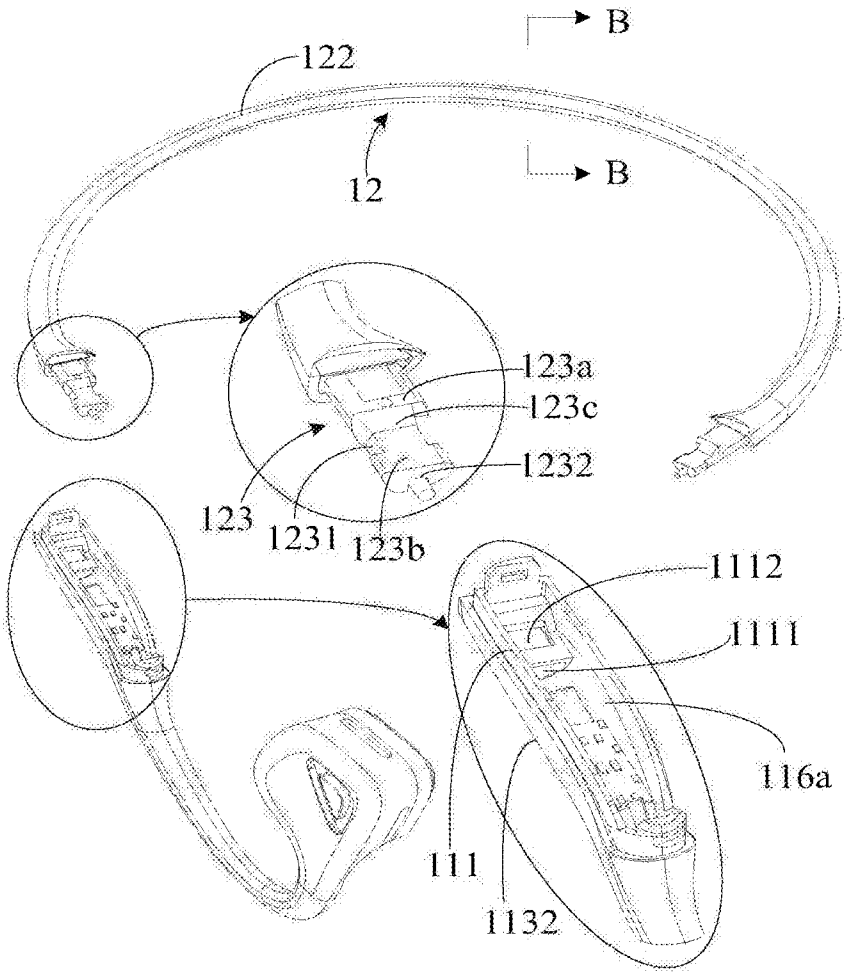


图9

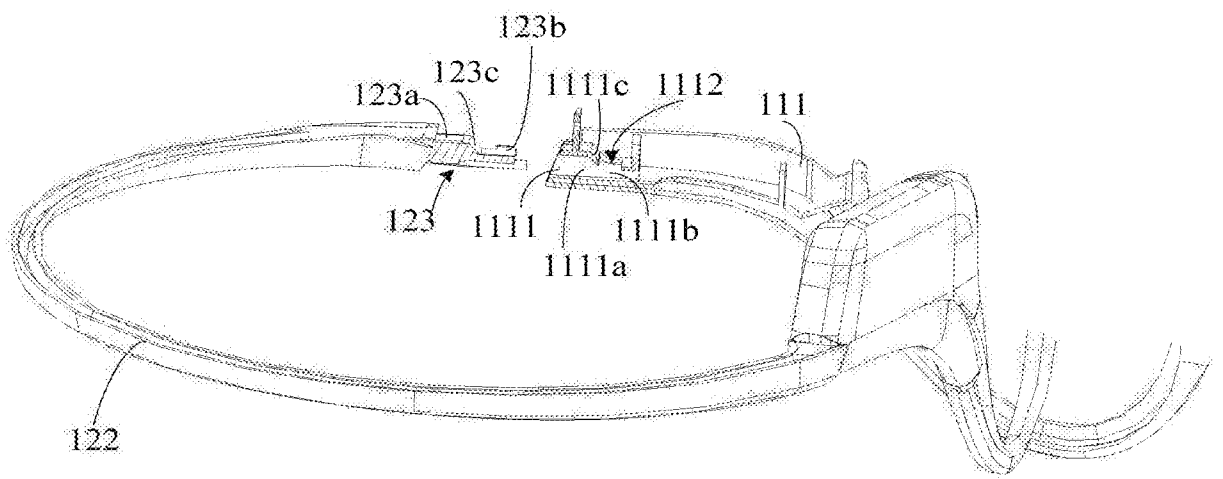


图10

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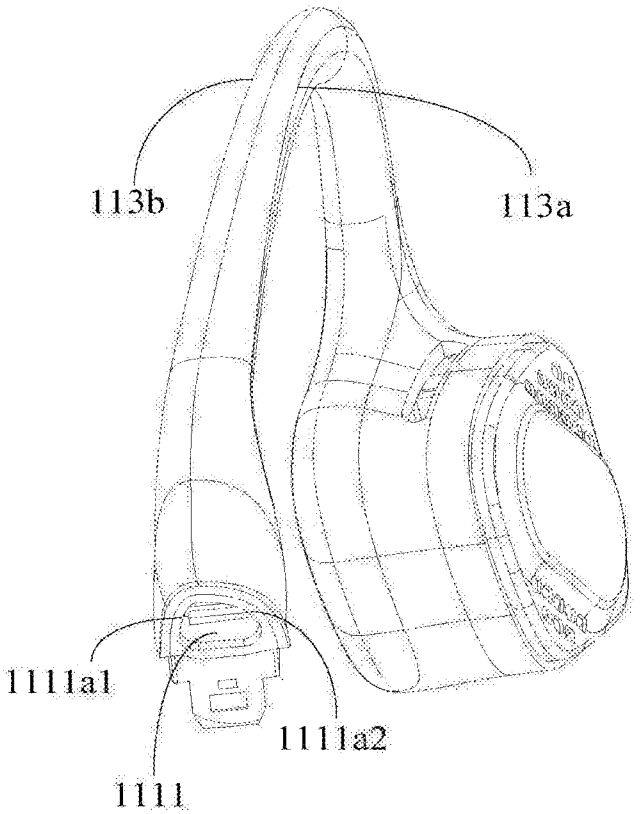


图11

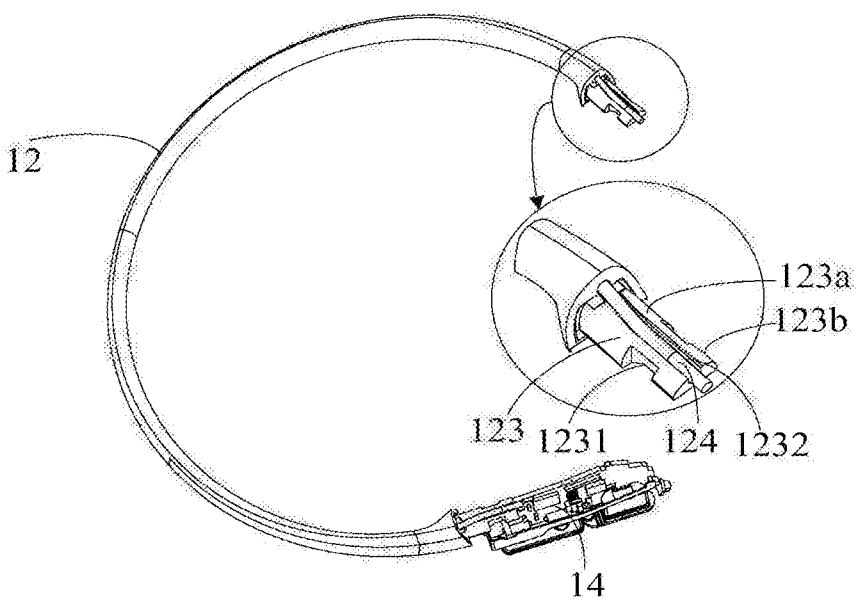


图12

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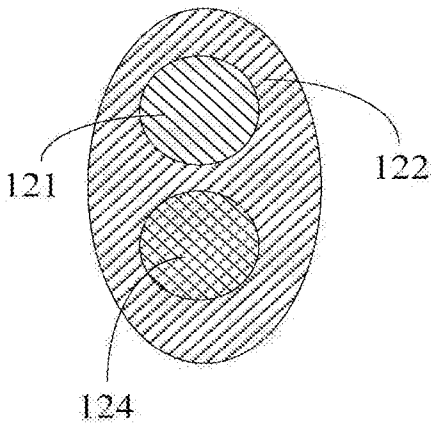


图13

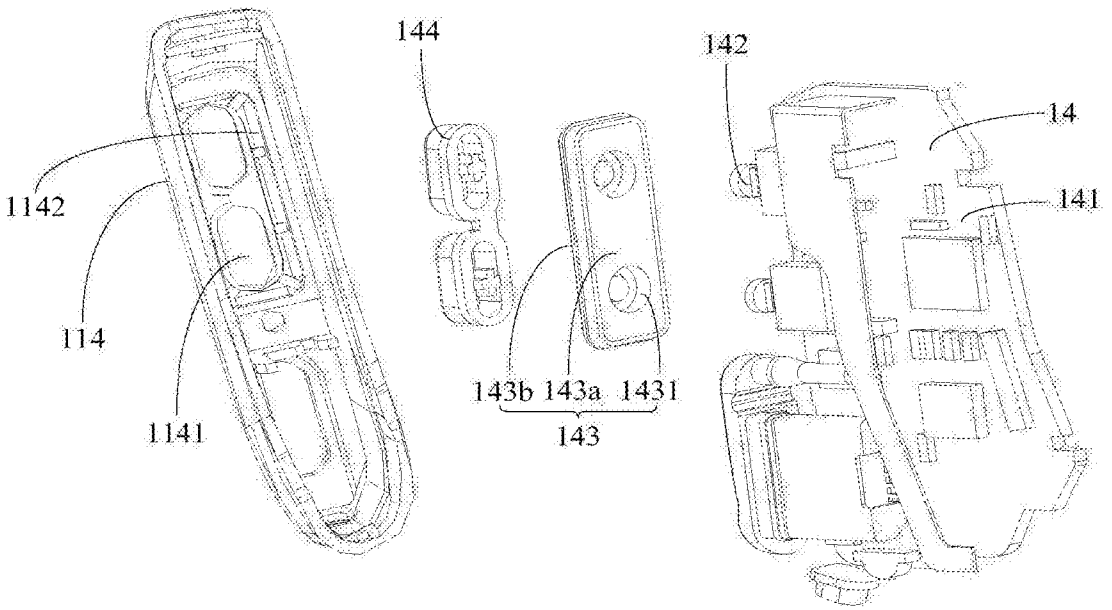


图14

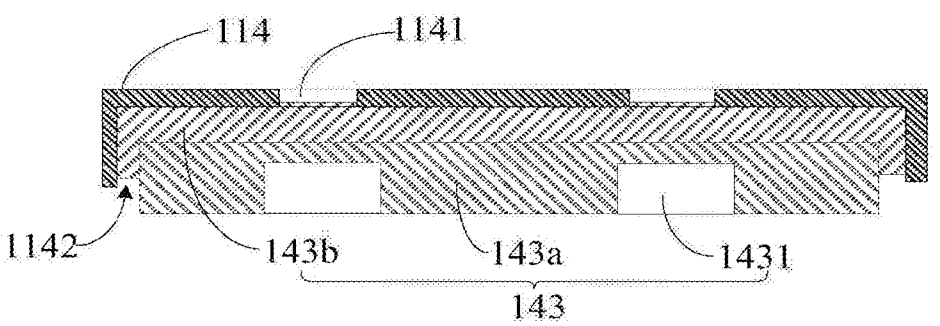


图15

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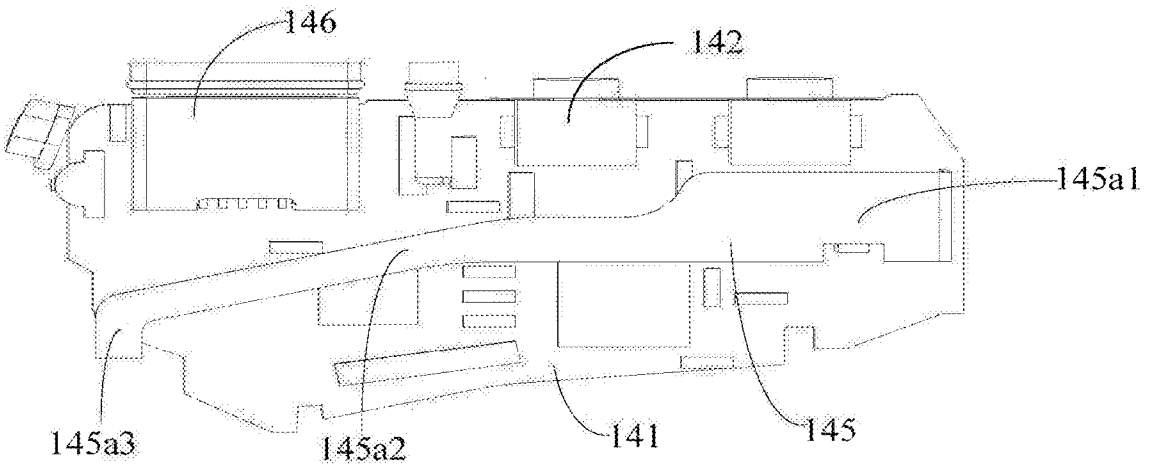


图16

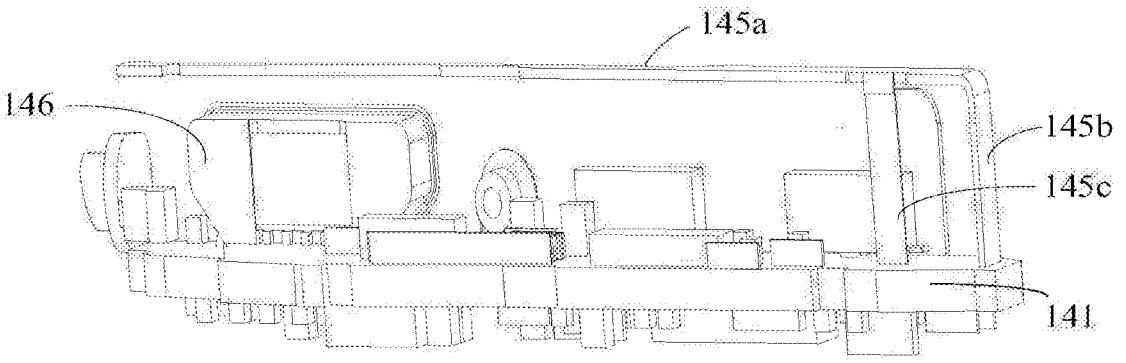


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment provides a kind of bone conduction earphone, including ear-hang component, the ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, wherein the connection member connects the first elastic metallic yarn of first housing and second housing and the first resilient coating being coated on first elastic metallic yarn respectively including both ends.By the above-mentioned means, the utility model can effectively strengthen the bending performance of bone conduction earphone.

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China

Other languages: Chinese

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Worldwide applications

2017 CN

Application CN201721042054.XU events

2017-08-18	Application filed by 深圳市新音科技有限公司
2017-08-18	Priority to CN201721042054.XU
2018-02-23	Application granted
2018-02-23	Publication of CN207039849U
2020-07-27	First worldwide family litigation filed

Info: Cited by (1), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.But existing bone conduction earphone bending performance is poor, easily damaged in bending It is bad.

Claims (16)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes ear-hang component, and the ear-hang component includes the One housing, the second housing and the connection member of connection first housing and the second housing, wherein the connection member includes Both ends connect the first elastic metallic yarn of first housing and second housing and are coated on first elasticity respectively The first resilient coating on wire.

2. bone conduction earphone according to claim 1, it is characterised in that first housing and the second housing are respectively with note Modeling mode is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection moiding manner and is coated on On first elastic metallic yarn.

Utility model content

The utility model can improve existing osteoacusis mainly solving the technical problems that provide a kind of bone conduction earphone The problem of earphone bending performance is poor.

In order to solve the above technical problems, the utility model embodiment provides a kind of bone conduction earphone, including ear-hang component, institute Stating ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, wherein The connection member includes the first elastic metallic yarn and bag that both ends connect first housing and second housing respectively The first resilient coating overlayed on first elastic metallic yarn.

Compared with prior art, the beneficial effects of the utility model are : The utility model embodiment passes through the first elasticity gold Belong to silk and connect the first housing and the second housing, and the first resilient coating the first elastic metallic yarn of cladding, due to elastic metallic yarn with And first resilient coating elastic reaction, can effectively strengthen the bending performance of ear-hang, bullet is effectively carried out when being bent Property reply and restore to the original state, be unlikely to deform, and traditional bone conductors earphone can be improved and use material of the plastics as ear-hang component The problems such as caused fragile.

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

3. bone conduction earphone according to claim 1, it is characterised in that first resilient coating is by the two of different colours individual sub-resilient coating is put together, wherein the split seam of described two elastic coating is respectively positioned at the relative of the connection member On two sides set, wherein the projection that the split is sewn on the same side offsets one from another.

4. bone conduction earphone according to claim 2, it is characterised in that the both ends of first elastic metallic yarn are in flat Shape sets and is respectively embedded into first housing and the second housing.

5. bone conduction earphone according to claim 1, it is characterised in that the inside of first resilient coating is further set The lead channels for connecting first housing and second housing are equipped with, the ear-hang component further comprises from described First housing extends to the first wire group of second housing through the lead channels, and the radial dimension of the lead channels is set Being set to allows the first wire group to be moved along the lead channels.

6. bone conduction earphone according to claim 5, it is characterised in that the ear-hang component includes the 3rd housing and the 4th Housing, wherein the 3rd housing coordinates with first housing, it is used to house battery component or control circuit component to be formed The first accommodation space, the 4th housing and second housing coordinate, to form be used to housing bone-conduction speaker the Two accommodation spaces, the first wire group are used to electrically connect the bone-conduction speaker and the battery component or control circuit group Part.

7. bone conduction earphone according to claim 6, it is characterised in that first housing and second housing are modelling Material shell body, and be fixedly connected respectively with injection molding manner with the both ends of first elastic metallic yarn ; And/or first elasticity Wire is at least made up of titanium alloy material ; And/or first resilient coating is layer of silica gel, is fixed and coated with injection molding manner In on first elastic metallic yarn ; And/or the 3rd housing and the 4th housing are plastic casing.

8. bone conduction earphone according to claim 6, it is characterised in that it is accommodating that the first son is provided with the first shell body Space, the second sub- accommodation

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang componenti 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so

space is provided with the 3rd housing, and when the 3rd housing and first housing coordinate First accommodation space is collectively forming with the described first sub-accommodation space, wherein the volume of the second sub- accommodation space is more than The first sub- accommodation space.

9. bone conduction earphone according to claim 6, it is characterised in that the 4th housing is set in prism-shaped, wherein Draw sound hole in the bar shaped that is at least provided with one side of the 4th housing, wherein length direction and the institute of sound hole are drawn in the bar shaped The bottom surface for stating the 4th housing be arranged in parallel, and the bar shaped draws the length of sound hole not less than the width of the side where it 2/3rds.

10. bone conduction earphone according to claim 1, it is characterised in that the quantity of the ear-hang component is two, described Bone conduction earphone further comprises rear hanging component, and the rear hanging component includes the second elastic metallic yarn, is coated on second bullet The second resilient coating on property wire and the Plug Division for being arranged at the second elastic metallic yarn both ends, it is described to patch part The first housing not with described two ear-hang components patches cooperation, and is fixedly connected.

11. bone conduction earphone according to claim 10, it is characterised in that the end set of first housing, which has, to be used for The jointing holes of the Plug Division insertion and the vertical direction of the direction of insertion in the Plug Division is allowed to connect the jointing holes With the perforate of outside, glue or installation stopper are applied from the outside through the perforate into the jointing holes with permission, to cause The Plug Division is fixed in the presence of the glue or stopper in the jointing holes.

12. bone conduction earphone according to claim 11, it is characterised in that the Plug Division includes and the described second elasticity The first of wire connection patches section and patches section with described first and be connected and away from second elastic metallic yarn setting Second patches section, and direction of insertion of the jointing holes along the Plug Division is divided into patches the first of section for receiving described first Hole section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to

as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials.Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user cosily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

allow for described Two patch section moves freely along the direction of insertion in first hole section, and make it that described first patches section and described first Tight fit between hole section.

13. bone conduction earphone according to claim 12, it is characterised in that described first, which patches section and described second, patches The stepped setting in bottom surface of section and patch section described first and second junction for patching section is provided with the first wedge shape Changeover portion, and the junction of first hole section and second hole section be provided with it is corresponding with the described first wedge-shaped changeover portion Second wedge-shaped changeover portion.

14. bone conduction earphone according to claim 6, it is characterised in that for accommodating the of the control circuit component Button perforate and the storage tank connected with the button perforate are provided with three housings, the control circuit component includes circuit Plate, the switch being fixed on the circuit board, waterproof liner and button, wherein the button is arranged in the button perforate And it is exposed through the button perforate, the waterproof liner includes liner plate main body and is coated on the liner plate main body with injection molding manner On the 3rd resilient coating, the waterproof liner is arranged in the storage tank and the 3rd resilient coating and the storage tank Sidewall elastomer abut, the button and it is described switch be respectively arranged at the waterproof liner both sides and respectively with the waterproof Liner plate abuts.

15. bone conduction earphone according to claim 14, it is characterised in that the control circuit component further comprises setting The antenna being placed on the circuit board, the antenna include antenna body spaced with the circuit board and described in being connected The grounding parts and current feed department of antenna body and the circuit board, wherein when being looked up perpendicular to the side of the circuit board, institute State antenna body and bent from the grounding parts to the side of the circuit board and extended.

16. bone conduction earphone according to claim 1, it is characterised in that first resilient coating further coats institute At least part outer surface of the first housing and the second housing is stated, is covered on second housing

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally It is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bulleis using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part formed with through hole, first elasticity Layer covers the through hole, and further above the through hole and the side away from second housing houses formed with button Portion, the ear-hang component further comprise button and switch module, wherein the button is arranged in the button holding part, institute State the side that switch module is arranged at remote first resilient coating of second housing, and with the institute below the button State the first resilient coating abutting.

be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing 112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly,

first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping In depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape Into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic

yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 8, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking), the first card Seaming element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component.When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the

first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape Into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, battery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold it is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled battery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space in 116a, or control circuit

component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not

less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the

dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected.Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag Include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Carry out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction

connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one It is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second.Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug

Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first Insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123 are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b

bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume.In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-

hang components 11, and control circuit component 14 is arranged at in first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by in key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coats liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other cut Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431。

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended.In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes through and can tapered into, but parallel Width of the width of portions 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

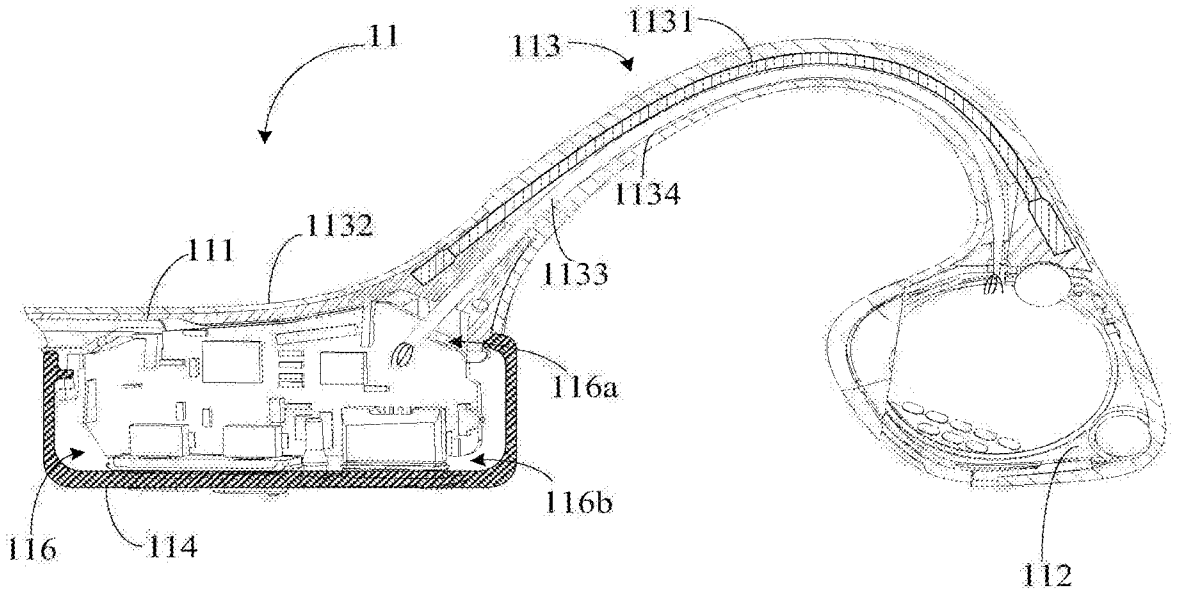


图1

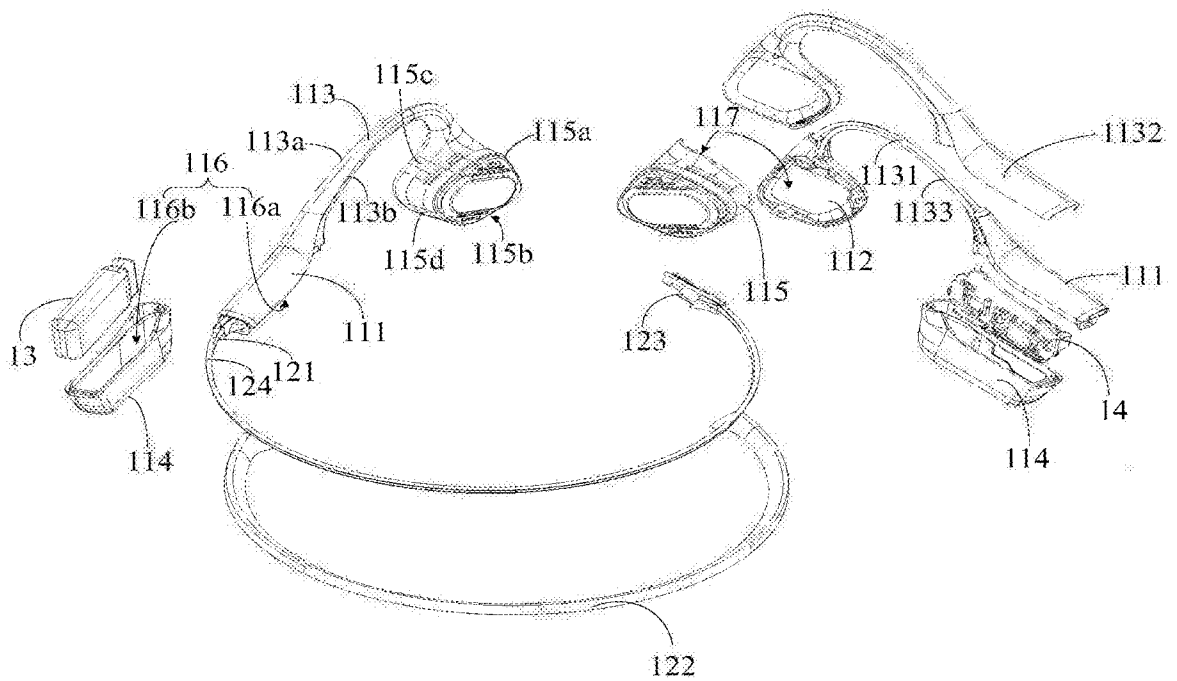


图2

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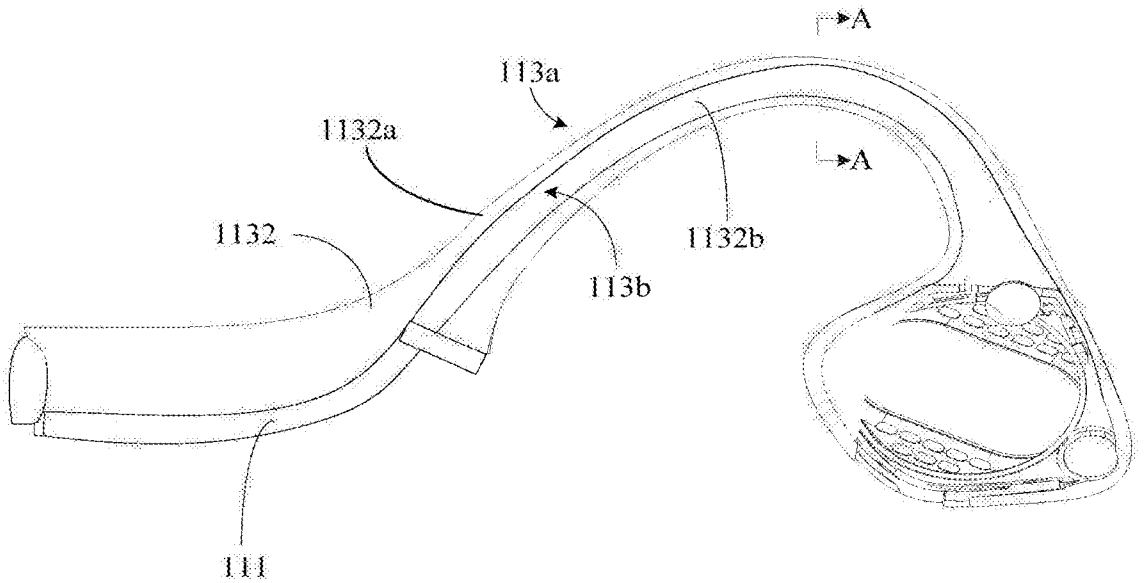


图3

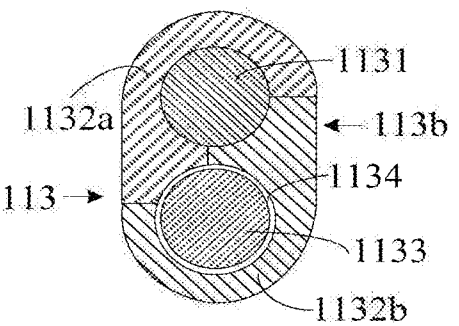


图4

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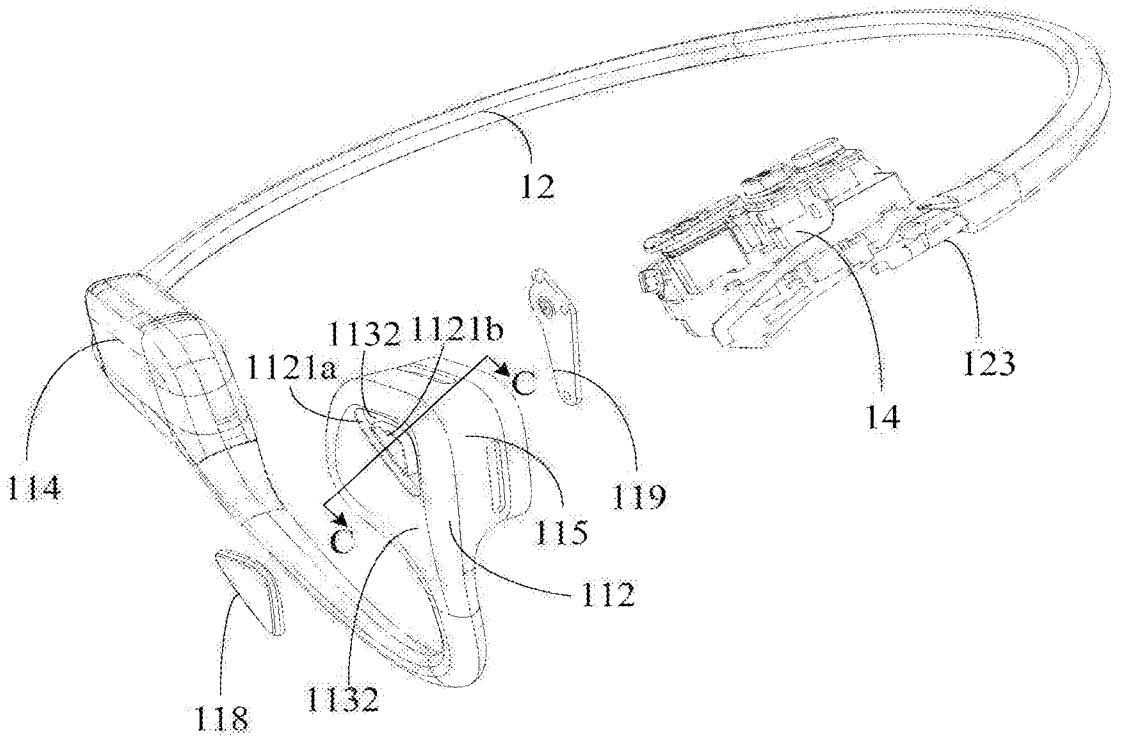


图5

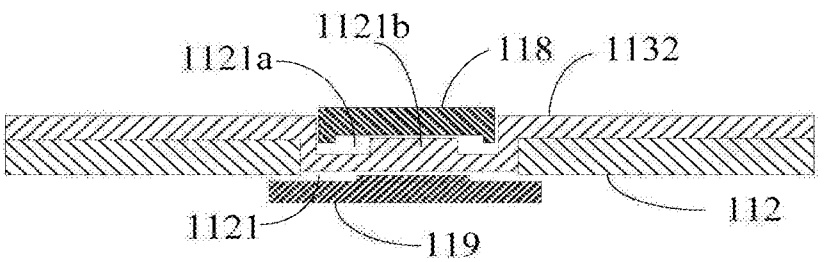


图6

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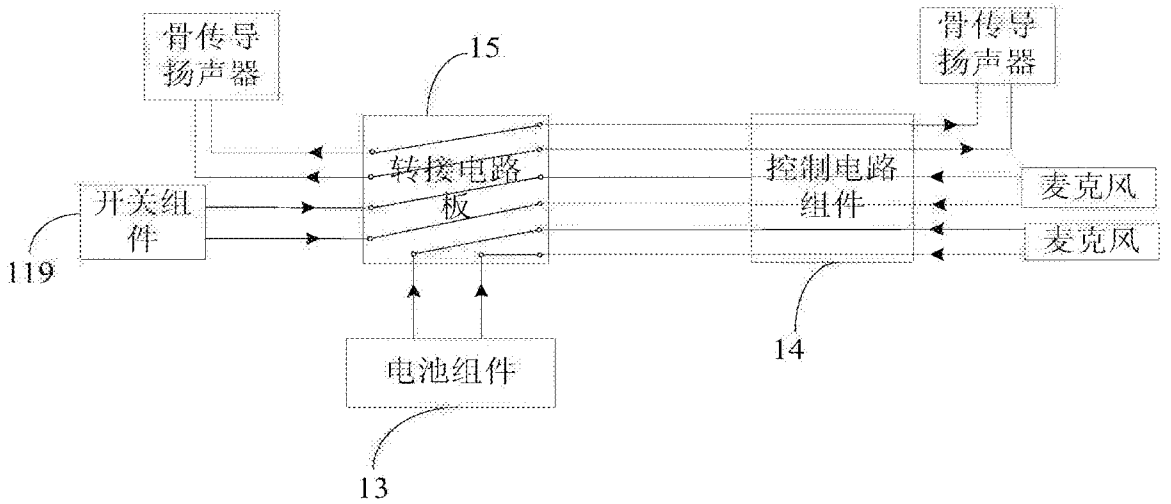


图7

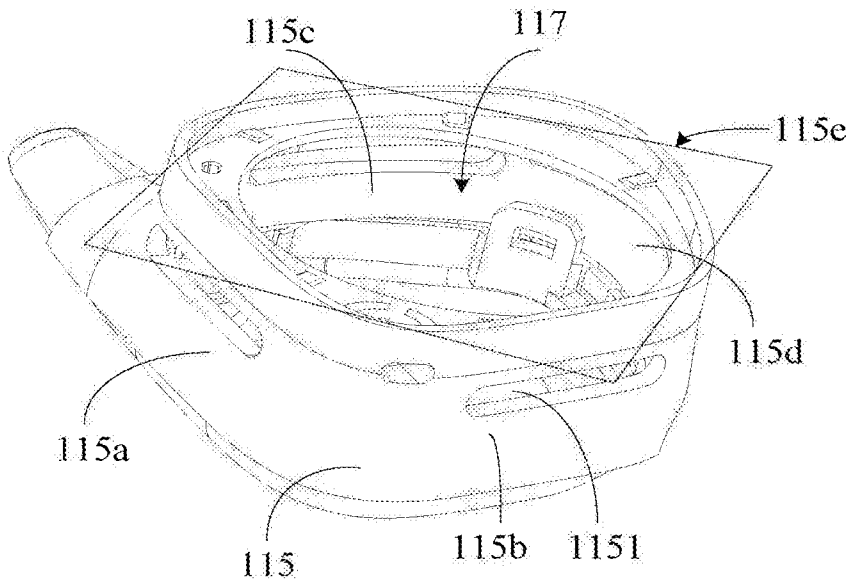


图8

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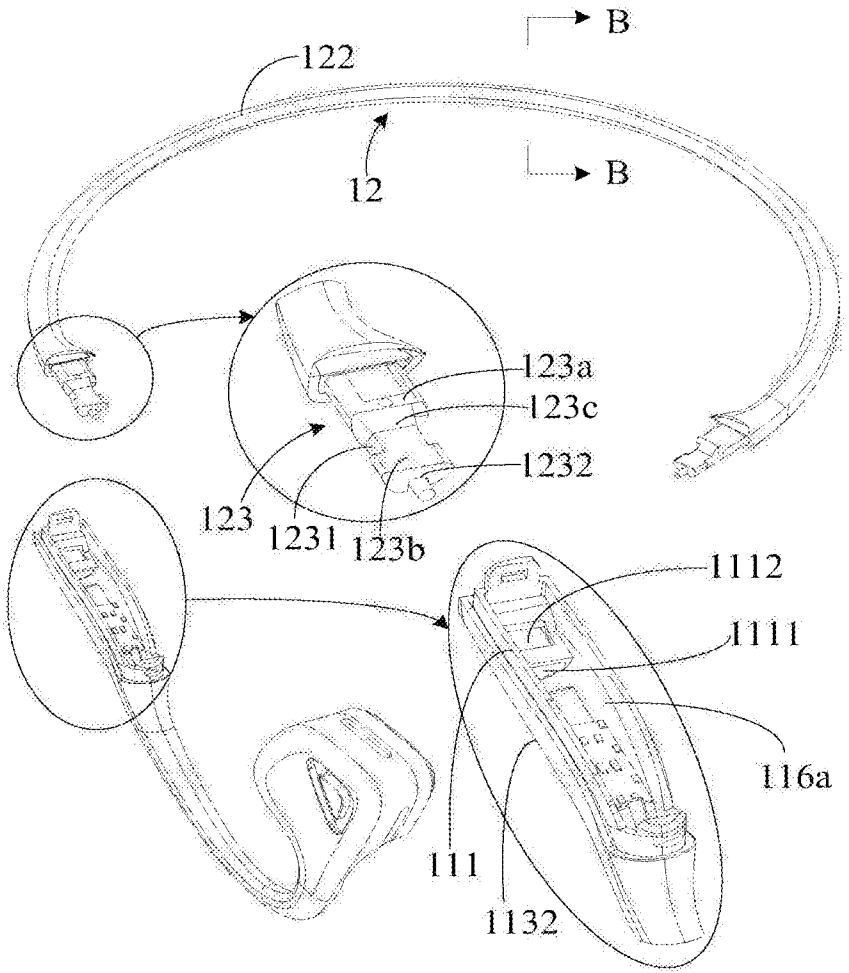


图9

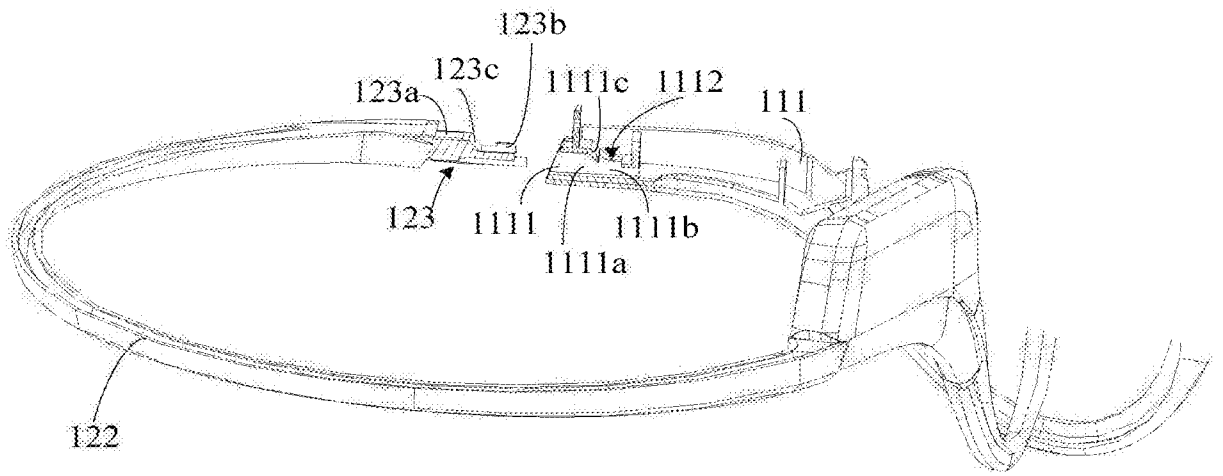


图10

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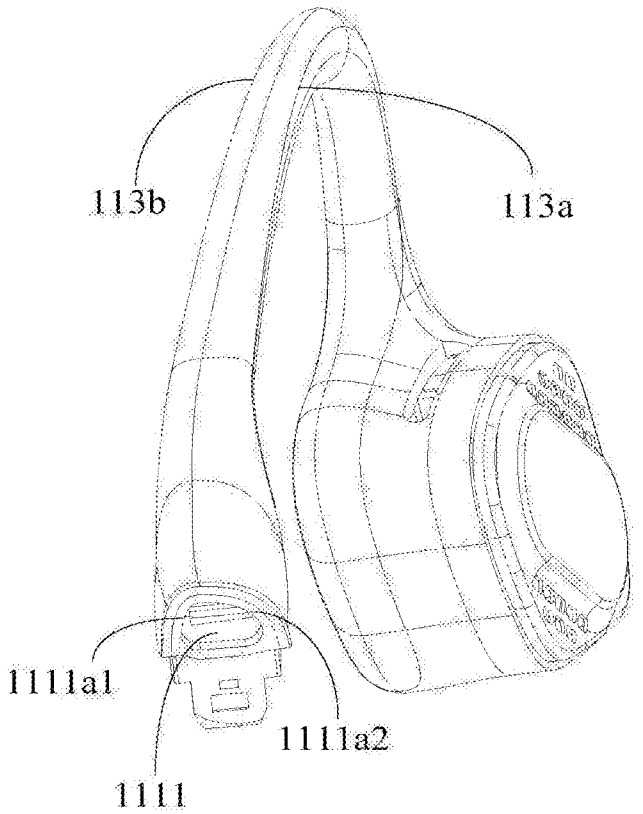


图11

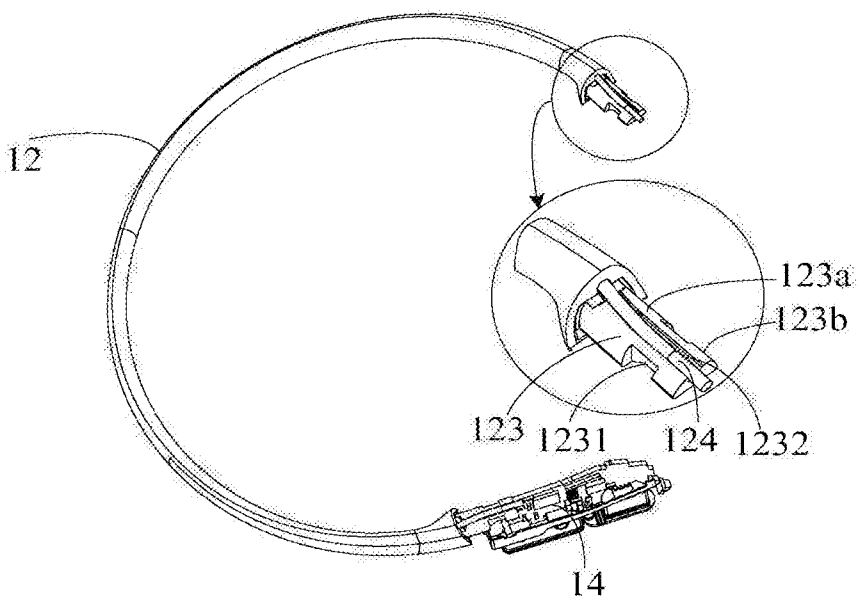


图12

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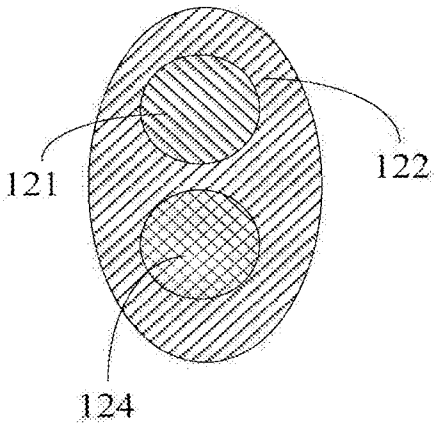


图13

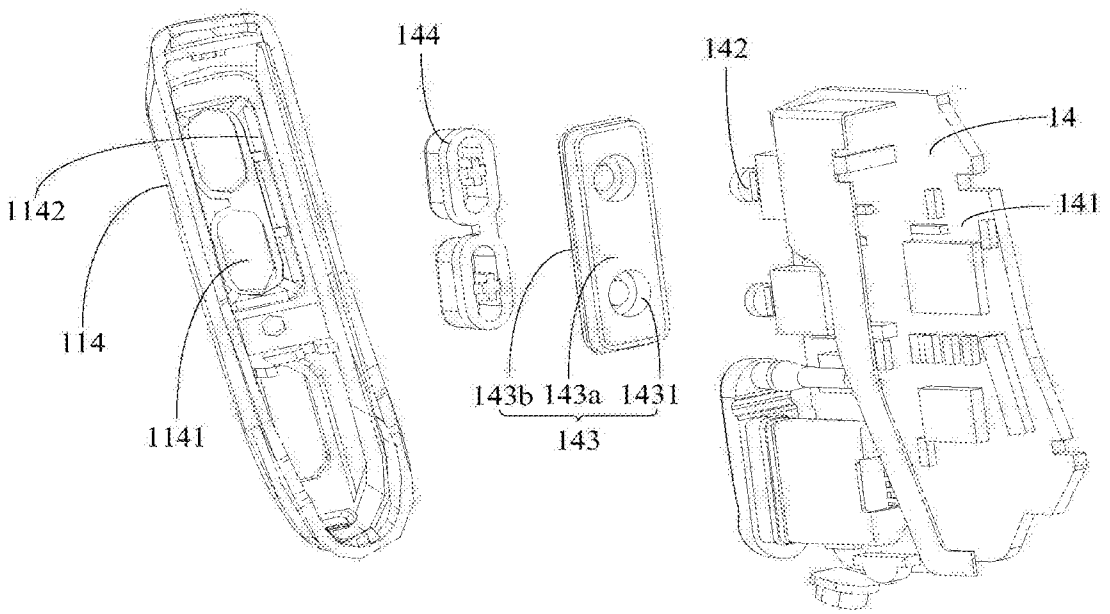


图14

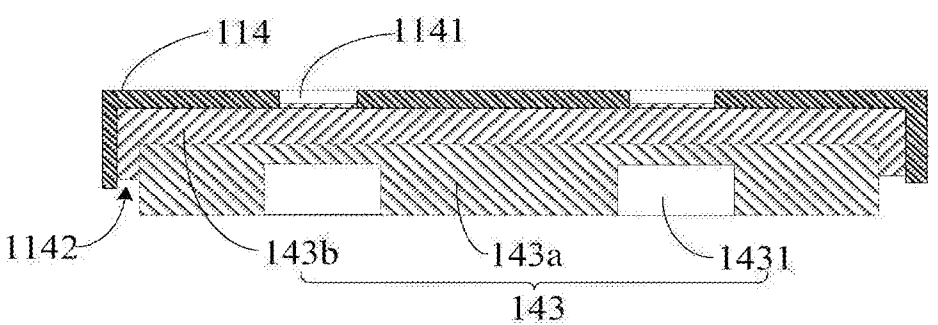


图15

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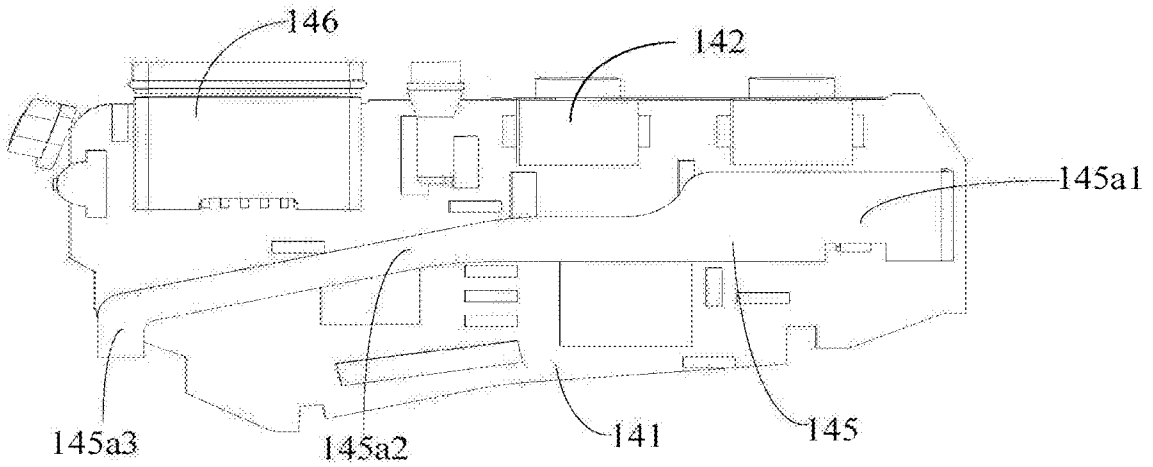


图16

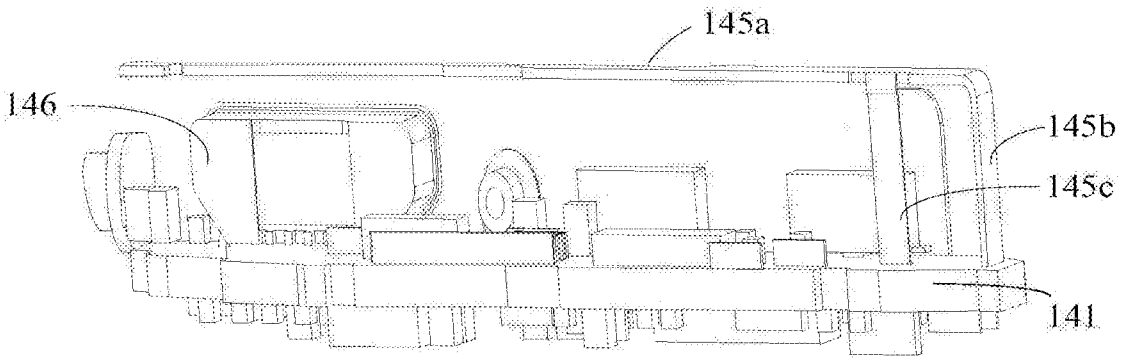


图17

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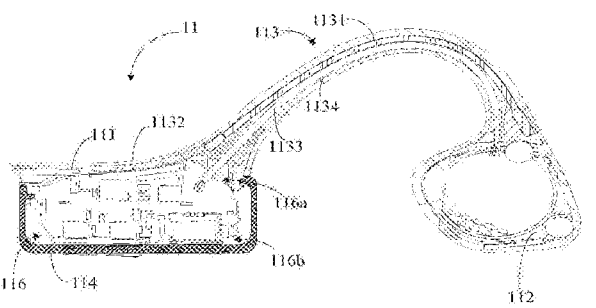
权利要求书2页 说明书10页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机，包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。通过上述方式，本实用新型能够有效增强骨传导耳机的弯折性能。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上。

3.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层由不同颜色的两个子弹性覆层拼合而成，其中所述两个子弹性覆层的拼合缝分别位于所述连接部件的相对设置的两个侧面上，其中所述拼合缝在同一所述侧面上的投影彼此错开。

4.根据权利要求2所述的骨传导耳机，其特征在于，所述第一弹性金属丝的两端呈扁平状设置并分别嵌入所述第一壳体和第二壳体。

5.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层的内部进一步设置有用于连通所述第一壳体和所述第二壳体的引线通道，所述耳挂组件进一步包括从所述第一壳体经所述引线通道延伸至所述第二壳体的第一导线组，所述引线通道的径向尺寸设置成允许所述第一导线组沿所述引线通道移动。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述耳挂组件包括第三壳体和第四壳体，其中所述第三壳体与所述第一壳体配合，以形成用于收容电池组件或控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，所述第一导线组用于电连接所述骨传导扬声器与所述电池组件或控制电路组件。

7.根据权利要求6所述的骨传导耳机，其特征在于，所述第一壳体和所述第二壳体为塑料壳体，且分别以注塑方式与所述第一弹性金属丝的两端固定连接；和/或，所述第一弹性金属丝至少由钛合金材料制成；和/或，所述第一弹性覆层为硅胶层，以注塑方式固定包覆于所述第一弹性金属丝上；和/或，所述第三壳体和所述第四壳体为塑料壳体。

8.根据权利要求6所述的骨传导耳机，其特征在于，所述第一壳体内设置有第一子容置空间，所述第三壳体内设置有第二子容置空间，并在所述第三壳体与所述第一壳体配合时与所述第一子容置空间共同形成所述第一容置空间，其中所述第二子容置空间的体积大于所述第一子容置空间。

9.根据权利要求6所述的骨传导耳机，其特征在于，所述第四壳体呈棱柱状设置，其中在所述第四壳体的至少一侧面上设置有条形引音孔，其中所述条形引音孔的长度方向与所述第四壳体的底面平行设置，且所述条形引音孔的长度不小于其所在的所述侧面的宽度的三分之二。

10.根据权利要求1所述的骨传导耳机，其特征在于，所述耳挂组件的数量为两个，所述骨传导耳机进一步包括后挂组件，所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

11.根据权利要求10所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔

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与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

12.根据权利要求11所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

13.根据权利要求12所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段。

14.根据权利要求6所述的骨传导耳机，其特征在于，用于容纳所述控制电路组件的第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接。

15.根据权利要求14所述的骨传导耳机，其特征在于，所述控制电路组件进一步包括设置于所述电路板上的天线，所述天线包括与所述电路板间隔设置的天线主体以及连接所述天线主体与所述电路板的接地部和馈电部，其中在垂直于所述电路板的方向上观察时，所述天线主体从所述接地部向所述电路板的一侧弯折延伸。

16.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层进一步包覆所述第一壳体和第二壳体的至少部分外表面，所述第二壳体上形成有通孔，所述第一弹性覆层覆盖所述通孔，并进一步在所述通孔上方且远离所述第二壳体的一侧形成有按键容置部，所述耳挂组件进一步包括按键和开关组件，其中所述按键设置于所述按键容置部内，所述开关组件设置于所述第二壳体的远离所述第一弹性覆层的一侧，并与所述按键下方的所述第一弹性覆层抵接。

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一种骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。但是现有的骨传导耳机弯折性能较差，容易在弯折时受到损坏。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够改善现有的骨传导耳机弯折性能较差的问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机，包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型实施例通过第一弹性金属丝连接第一壳体与第二壳体，且第一弹性覆层包覆第一弹性金属丝，由于弹性金属丝以及第一弹性覆层的弹性作用，能够有效增强耳挂的弯折性能，在受到弯折时有效地进行弹性回复而恢复原状，不易变形，且能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

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[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料

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层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于

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第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一

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端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路，过流保护电路、过放保护电路、过压保护电路等。例如

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电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形

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引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，

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以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示),以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中,开孔1112位于所述第一子容置空间116a内。在其他实施例中,第一壳体111的端部设置有用于允许接插部123插入的接插孔1111,接插部123上具有一凹部,接插孔1111内具有一弹性凸部,接插部123插入接插孔1111时,弹性凸部卡入凹部,以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时,弹性凸部先被挤压,后在弹性恢复力的作用下卡入凹部内。可选的是,接插部123插入接插孔1111的深度为6-11mm,可选为8-10mm。

[0061] 继续参阅图9和图10,可选的是,接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露,并用于接收胶水或卡止件。可选的是,接插部123的至少一个侧壁上设置有开槽1231,例如两个侧壁上均设置有开槽1231。在其他实施例中,可以同时使用胶水和卡止件,例如先使用卡止件固定,再施加胶水进一步固定。在本实施例中,卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10,可选的是,接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动,且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定,可以使得接插部123更稳固地固定在第一壳体111内,增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10,可选的是,开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中,在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b,以使第一接插段123a与第一孔段1111a紧配合,第二接插段123b的开槽1231经开孔1112外露,以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定,能够有效地将后挂与耳挂固定连接。在其他实施例中,开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是,第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定,进一步有效地将后挂与耳挂固定连接,且能够简化结构,使骨传导耳机轻便化。当然,在其他实施例中,第一接插段123a与第一孔段1111a之间紧配合,而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11,可选的是,第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同,相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较缓,而外侧面1111a1的弧度变化相对较大,第一接插段123a两侧面相对应设置。当然,在其他实施例中,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较大,而外侧面1111a1的弧度变化相对较小。

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第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，

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以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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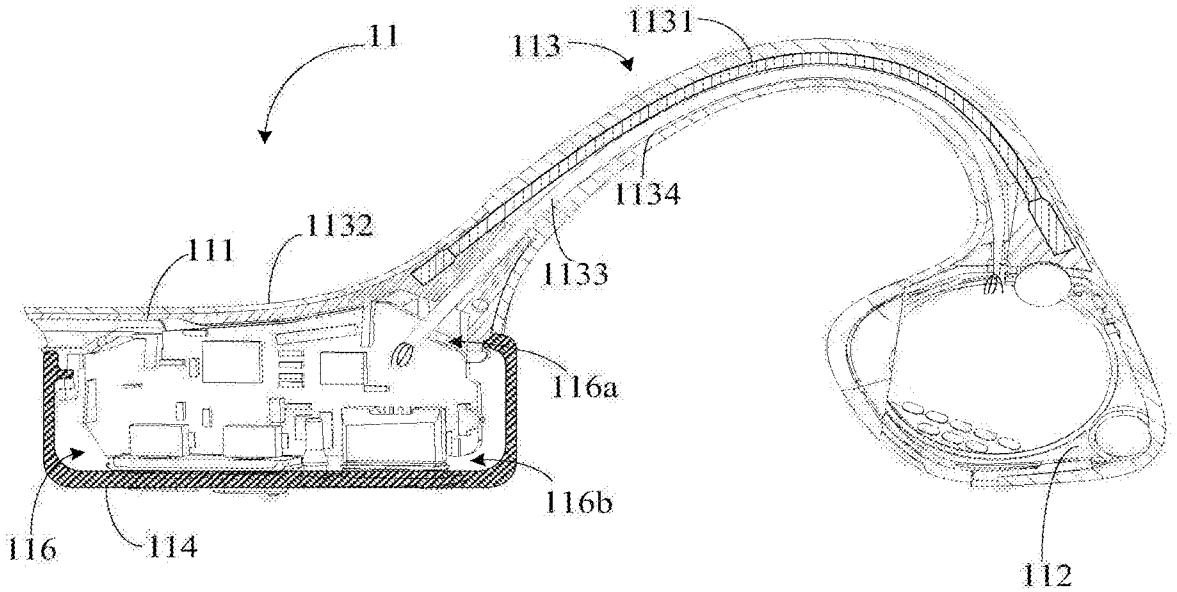


图1

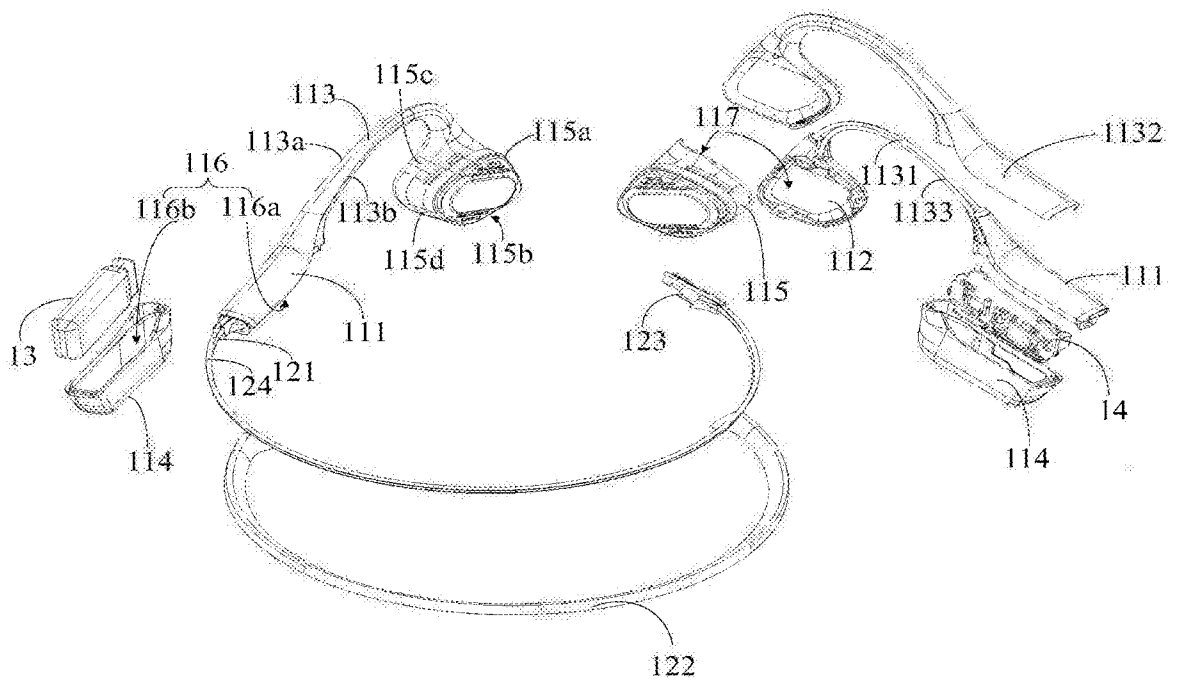


图2

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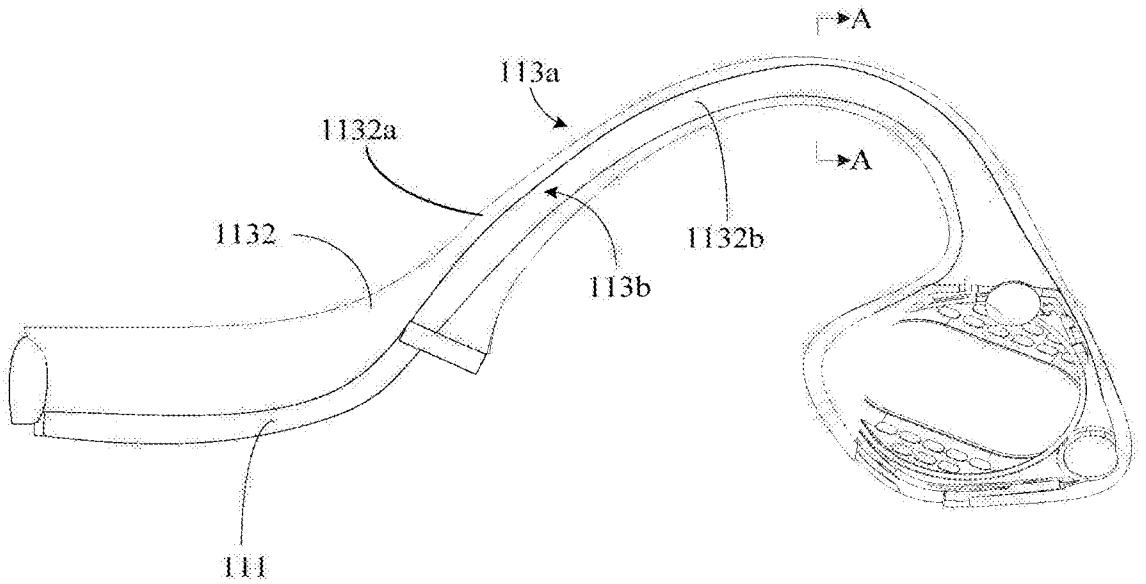


图3

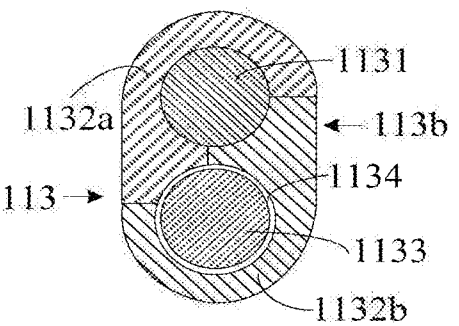


图4

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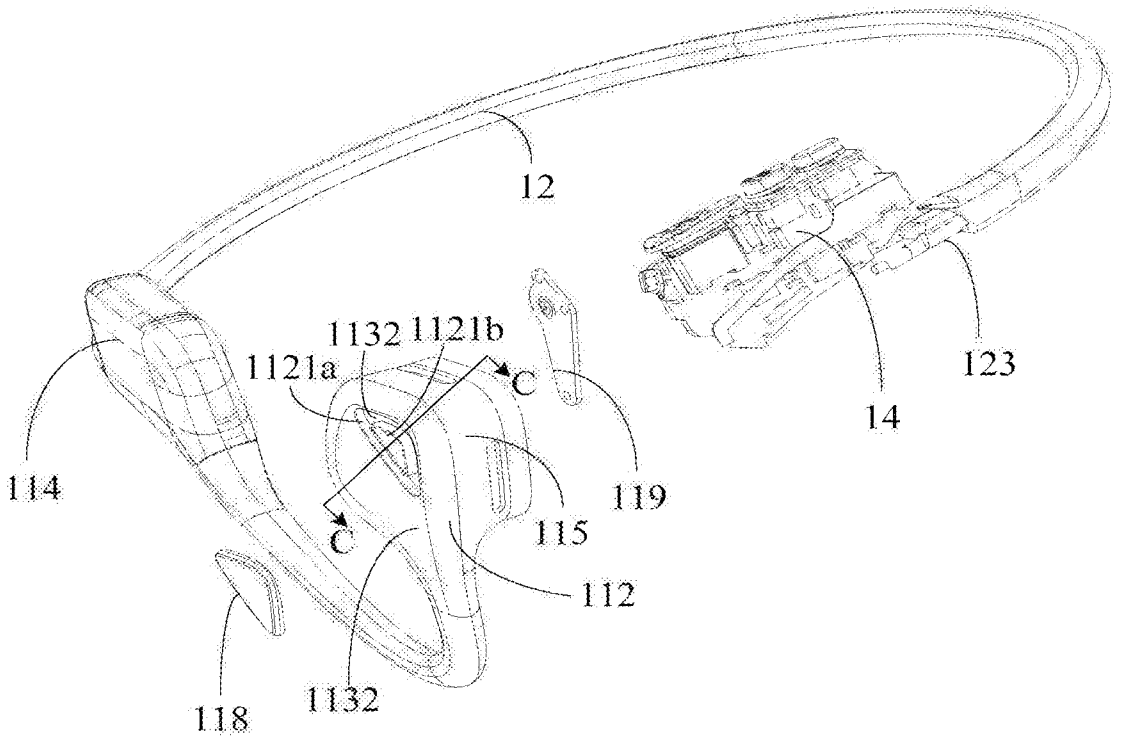


图5

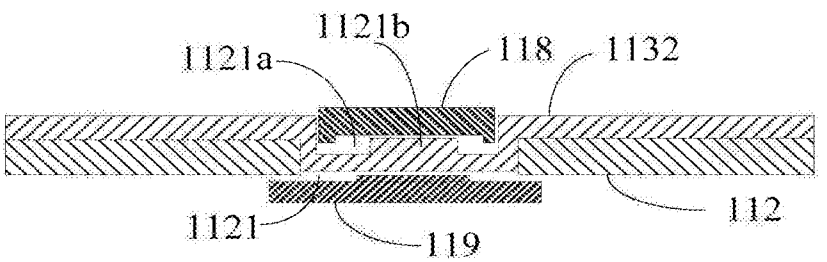


图6

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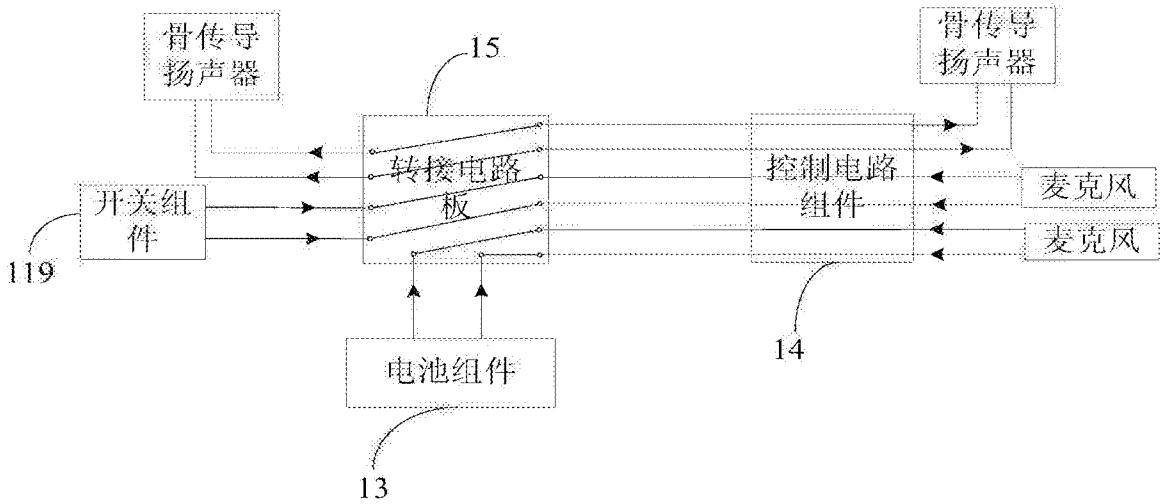


图7

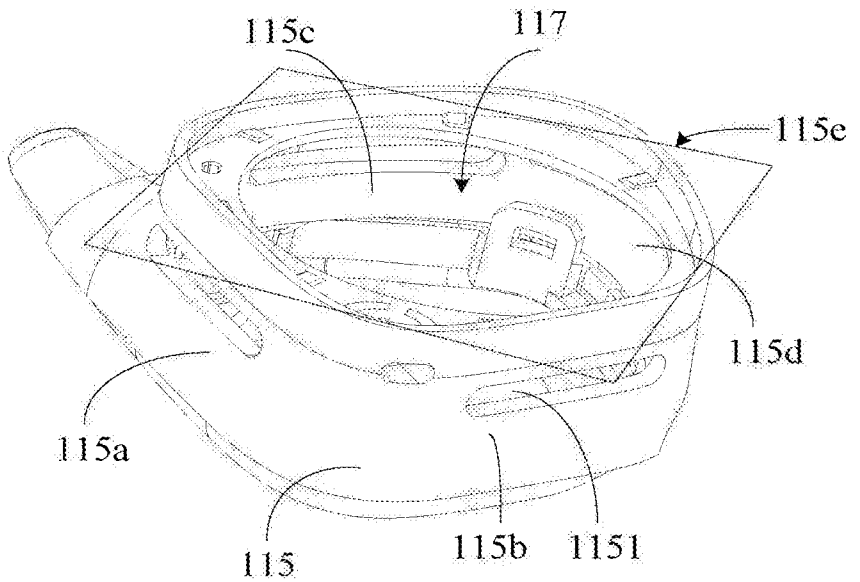


图8

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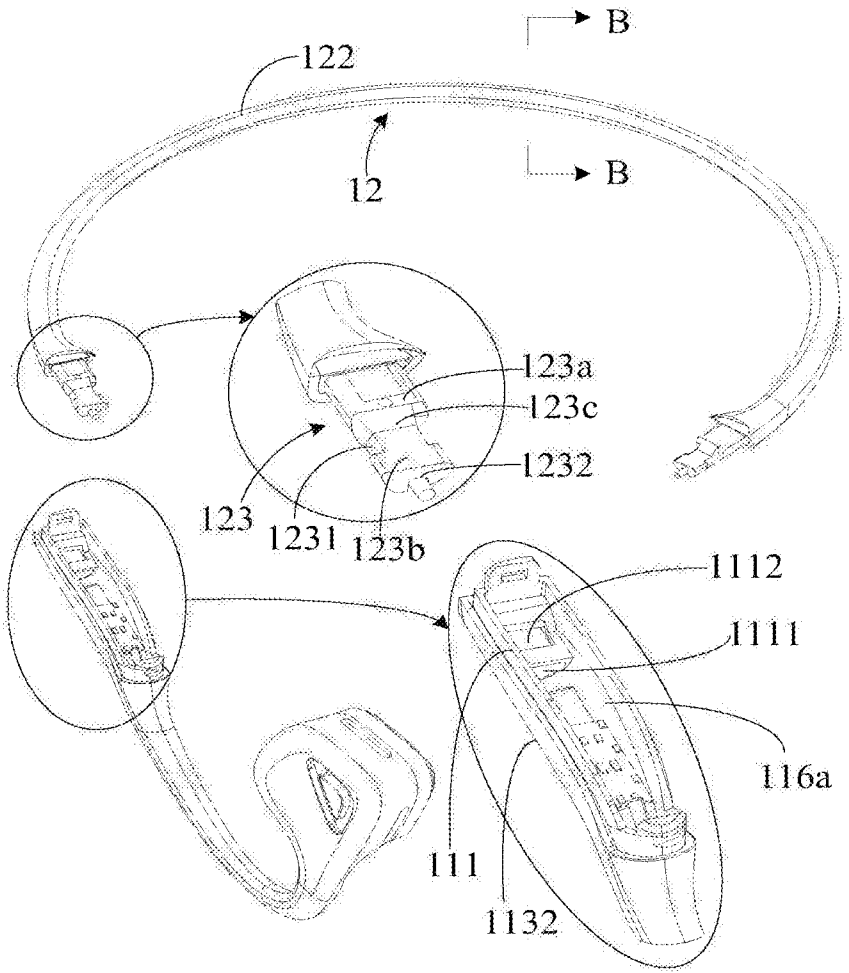


图9

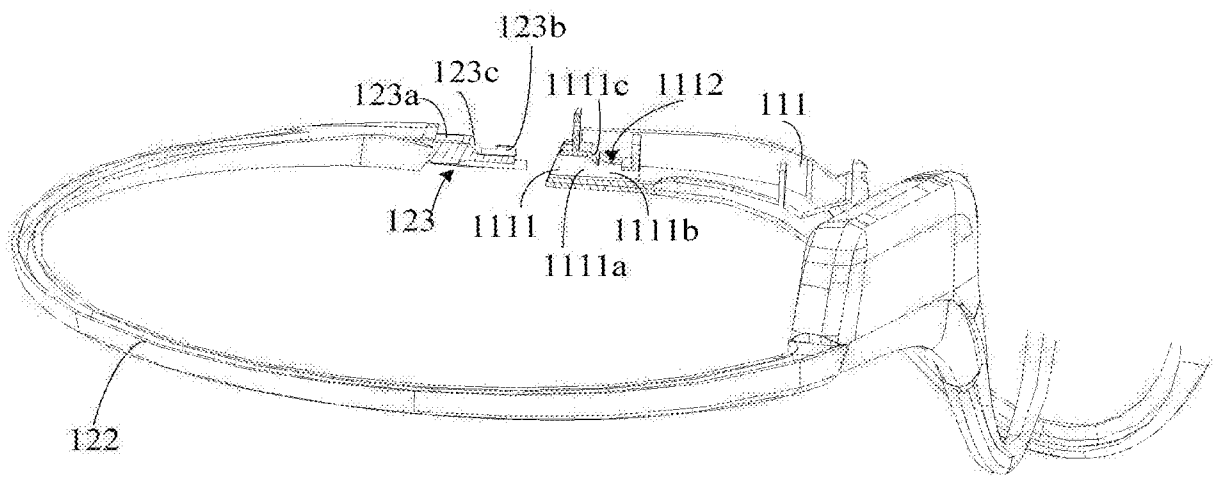


图10

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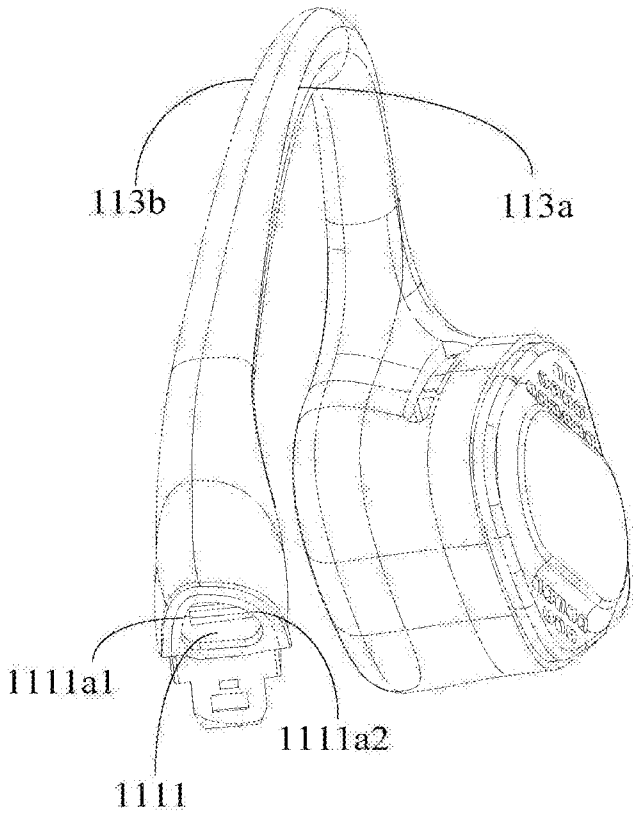


图11

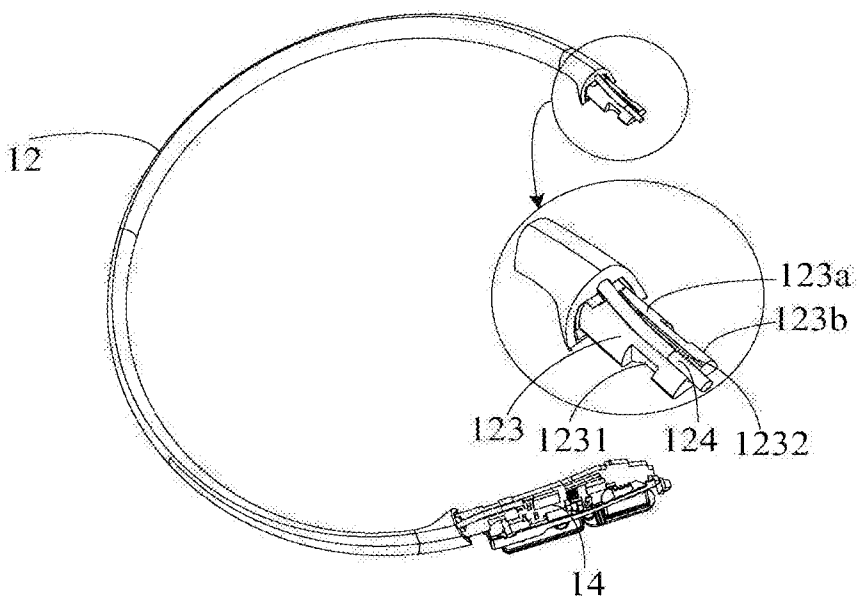


图12

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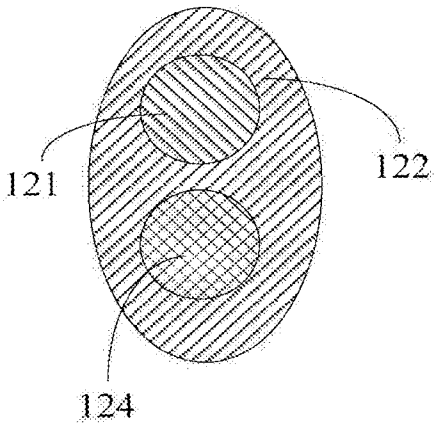


图13

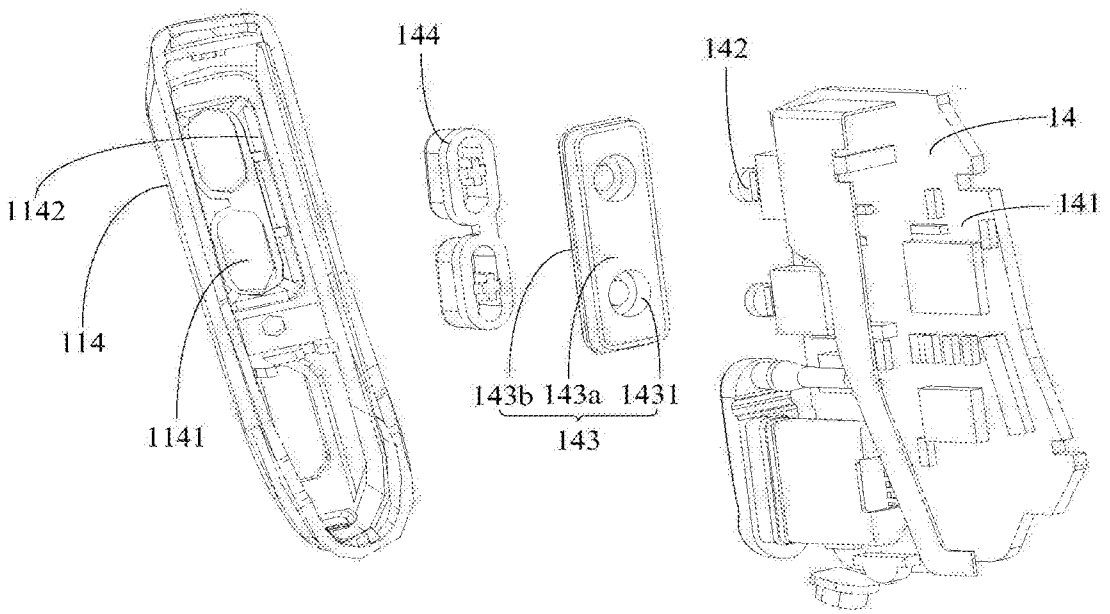


图14

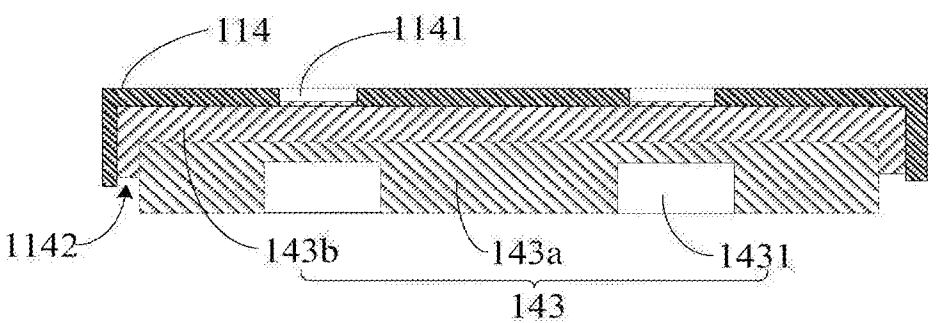


图15

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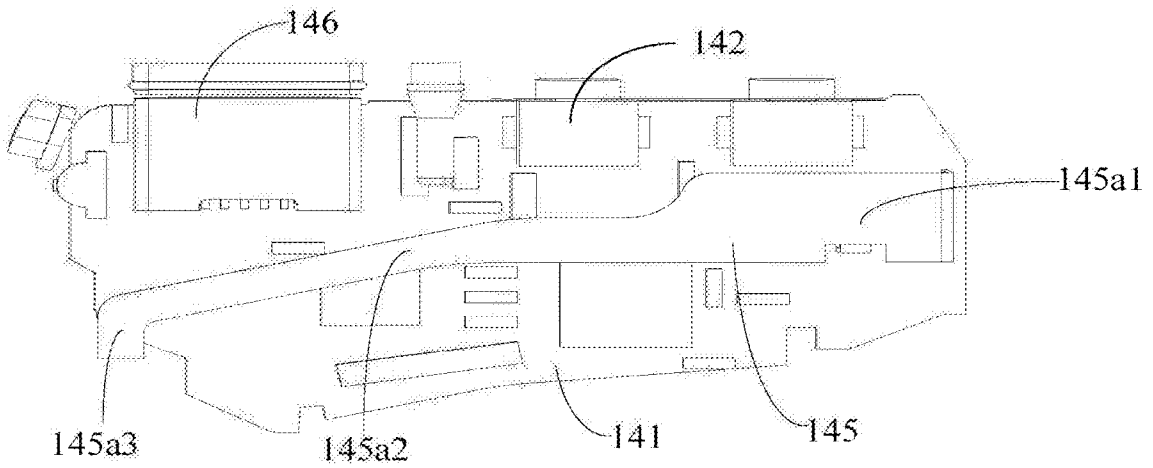


图16

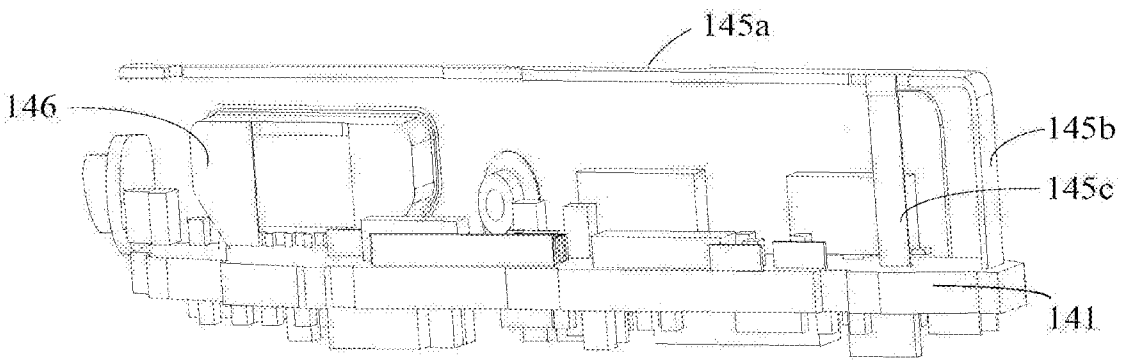


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment provides a kind of bone conduction earphone, including two ear-hang components, hanging component afterwards, battery component and control circuit component, ear-hang component includes the first housing, second housing, connection member, 3rd housing and the 4th housing, wherein connection member includes the first resilient coating that both ends connect the first elastic metallic yarn of the first housing and the second housing and are coated on the first elastic metallic yarn respectively, 3rd housing and the first housing coordinate, to form the first accommodation space, wherein battery component, control circuit component is respectively arranged at the first accommodation space of two ear-hang components.Hanging component includes the second elastic metallic yarn, the second resilient coating being coated on the second elastic metallic yarn and the Plug Division for being arranged at the second elastic metallic yarn both ends afterwards, and first housing of the Plug Division respectively with two ear-hang components patches cooperation, and is fixedly connected.By the above-mentioned means, the utility model can effectively strengthen the bending performance and wearing comfort of bone conduction earphone.

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Other languages: Chinese

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Worldwide applications

2017 CN

Application CN201721042066.2U events

2017-08-18	Application filed by 深圳市新音科技有限公司
2017-08-18	Priority to CN201721042066.2U
2018-02-23	Application granted
2018-02-23	Publication of CN207039851U
2020-07-20	First worldwide family litigation filed

Info: Cited by (2), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.Existing bone conduction earphone is poor with texture there is

Claims (10)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes two ear-hang components, rear hanging component, battery Component and control circuit component, the ear-hang component include the first housing, the second housing, connection first housing and second The connection member of housing, the 3rd housing and the 4th housing, wherein the connection member connects described first respectively including both ends First elastic metallic yarn of housing and second housing and the first elasticity being coated on first elastic metallic yarn are covered Layer, first resilient coating further cover at least part outer surface of first housing and the second housing, and the described 3rd Housing coordinates with first housing, is housed with formation for housing the first of the battery component or the control circuit component Space, the 4th housing coordinate with second housing, to form the second accommodation

bending performance, causes fragile With wear it is uncomfortable the problems such as.

Utility model content

The utility model can improve existing earphone and wear mainly solving the technical problems that provide a kind of bone conduction earphone Wear uncomfortable problem.

In order to solve the above technical problems, the utility model embodiment provides a kind of bone conduction earphone, including two ear-hang groups Part, rear hanging component, battery component and control circuit component, the ear-hang component include the first housing, the second housing, connection institute Connection member, the 3rd housing and the 4th housing of the first housing and the second housing are stated, wherein the connection member includes both ends The first elastic metallic yarn of first housing and second housing is connected respectively and is coated on first elastic metallic The first resilient coating on silk, first resilient coating further cover at least part of first housing and the second housing Outer surface, the 3rd housing coordinate with first housing, are used to house the battery component or the control electricity to be formed First accommodation space of road component, the 4th housing coordinate with second housing, are raised one's voice with being formed for housing osteoacusis Second accommodation space of device, wherein the battery component be arranged at one of described two ear-hang components it is described first accommodating Space, the control circuit component are arranged in first accommodation space of the other of described two ear-hang components ; Institute Stating rear hanging component includes the second elastic metallic yarn, the second resilient coating being coated on second elastic metallic yarn and setting in the Plug Division at the second elastic metallic yarn both ends, first housing of the Plug Division respectively with described two ear-hang components connects Inserting is closed, and is fixedly connected.

Compared with prior art, the beneficial effects of the utility model are : The utility model embodiment passes through the first elasticity gold Belong to silk and connect the first housing and the second housing, and the first resilient coating coats the first elastic metallic yarn, the second resilient coating cladding Second elastic metallic yarn, due to the first elastic metallic yarn, the second elastic metallic yarn, the first resilient coating and the second resilient coating Elastic reaction, can effectively strengthen the bending performance of ear-hang, effectively carry out elastic recovery when being bent and recover former Shape, it is unlikely to deform, and traditional bone conductors earphone can be improved using plastics as fragile caused by the material of ear-hang component The problems such as, and the first resilient coating directly contacts human body with the second resilient coating, wears more comfortable.

space for being used for housing bone-conduction speaker, Wherein described battery component is arranged at first accommodation space of one of described two ear-hang components, the control circuit Component is arranged in first accommodation space of the other of described two ear-hang components ; Hanging component includes second after described Elastic metallic yarn, the second resilient coating being coated on second elastic metallic yarn and it is arranged at second elastic metallic The Plug Division at silk both ends, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, and is fixedly connected.

2. bone conduction earphone according to claim 1, it is characterised in that the end set of first housing has for permitting Perhaps the vertical direction of the jointing holes of Plug Division insertion and the direction of insertion in the Plug Division connect the jointing holes with Outside perforate, to allow into the jointing holes to apply from the outside through the perforate glue or installation stopper, to cause Plug Division is stated to be fixed in the presence of the glue or stopper in the jointing holes.

3. bone conduction earphone according to claim 2, it is characterised in that fluting is provided with the side wall of the Plug Division, The fluting is exposed through the perforate, and for receiving the glue or stopper.

4. bone conduction earphone according to claim 3, it is characterised in that the Plug Division includes and the described second elasticity gold The first of category silk connection patches section and patches section with described first and be connected and away from the of second elastic metallic yarn setting Two patch section, and direction of insertion of the jointing holes along the Plug Division is divided into for receiving the described first the first hole for patching section Section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to allow for described second Patch section to move freely in first hole section along the direction of insertion, and make it that described first patches section and first hole Tight fit between section.

5. bone conduction earphone according to claim 4, it is characterised in that second hole section is dimensioned so that institute State second and patch tight fit between section and second hole section ; And/or described first patch section both sides and connect with first hole section The shape of tactile contact surface is

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

different ; And/or the fluting is arranged at described second and patched in section.

6. bone conduction earphone according to claim 5, it is characterised in that described first, which patches section and described second, patches section The stepped setting in bottom surface and patch section described first and second junction for patching section is provided with the first wedge-shaped mistake Section is crossed, and the junction of first hole section and second hole section is provided with corresponding with the described first wedge-shaped changeover portion Two wedge-shaped changeover portions ; And/or the rear hanging component further comprises by the second wire group of second resilient coating cladding, The both ends of wherein described second wire group are exposed from second resilient coating, and the top surface of the Plug Division is provided with for accommodating The groove of sunkening cord of the exposed parts of the second wire group.

7. bone conduction earphone according to claim 1, it is characterised in that the 4th housing is set in prism-shaped, wherein Draw sound hole in the bar shaped that is at least provided with one side of the 4th housing, wherein length direction and the institute of sound hole are drawn in the bar shaped The bottom surface for stating the 4th housing be arranged in parallel, and the bar shaped draws the length of sound hole not less than the width of the side where it 2/3rds.

8. bone conduction earphone according to claim 1, it is characterised in that for accommodating the ear-hang of the control circuit component Button perforate and the storage tank connected with the button perforate, the control circuit component bag are provided with 3rd housing of component Circuit board, the switch being fixed on the circuit board, waterproof liner and button are included, wherein the button is arranged at the button In perforate and exposed through the bution perforate, the waterproof liner includes liner plate main body and is coated on the lining with injection molding manner The 3rd resilient coating in plate main body, the waterproof liner be arranged in the storage tank and the 3rd resilient coating with it is described The sidewall elastomer of storage tank abuts, the button and it is described switch the both sides that are respectively arranged at the waterproof liner and respectively with institute State waterproof liner abutting ; And/or

The through hole is covered formed with through hole, first resilient coating on second housing,

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang component 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or and further in the through hole Top and further comprise button and switch formed with button holding part, the ear-hang component away from the side of second housing Component, wherein the button is arranged in the button holding part, the switch module is arranged at second housing away from institute The side of the first resilient coating is stated, and is abutted with first resilient coating below the button.

9. bone conduction earphone according to claim 1, it is characterised in that first housing and the second housing are respectively with note Modeling mode is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection molding manner and is coated on On first elastic metallic yarn, the Plug Division is individually fixed in the second elastic metallic yarn both ends with injection molding manner ; With/ Or, first elastic metallic yarn is at least made up of titanium alloy material, second elastic metallic yarn is at least by titanium alloy material It is made.

10. bone conduction earphone according to claim 1, it is characterised in that the inside of first resilient coating is further The lead channels for connecting first housing and second housing are provided with, the ear-hang component further comprises from institute State the first wire group that the first housing extends to second housing through the lead channels, the radial dimension of the lead channels It is arranged to allow the first wire group to move along the lead channels, the first wire group is used to electrically connect the osteoacusis Loudspeaker and the battery component or the control circuit component.

including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials.Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user easily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally It is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bullets using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of

color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at

medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing 112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly, first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping in depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes

button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape Into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 3, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking).

the first card Searning element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component.When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, battery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit

board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold It is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled battery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space In 116a, or control circuit component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear

that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the

side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected.Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic

yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Cany out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one It is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second.Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a

was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123 are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-hang components 11, and control circuit component 14 is arranged at In first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by In key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coats liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other out Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431,.

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended.In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of

the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes through and can tapered into, but parallel Width of the width of portion's 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

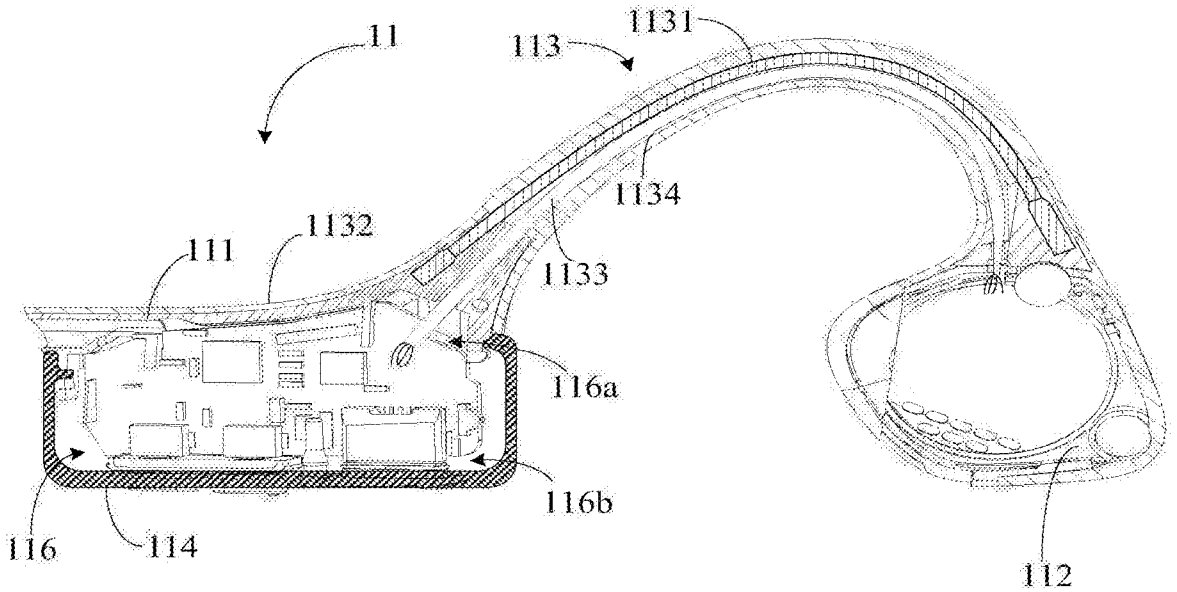


图1

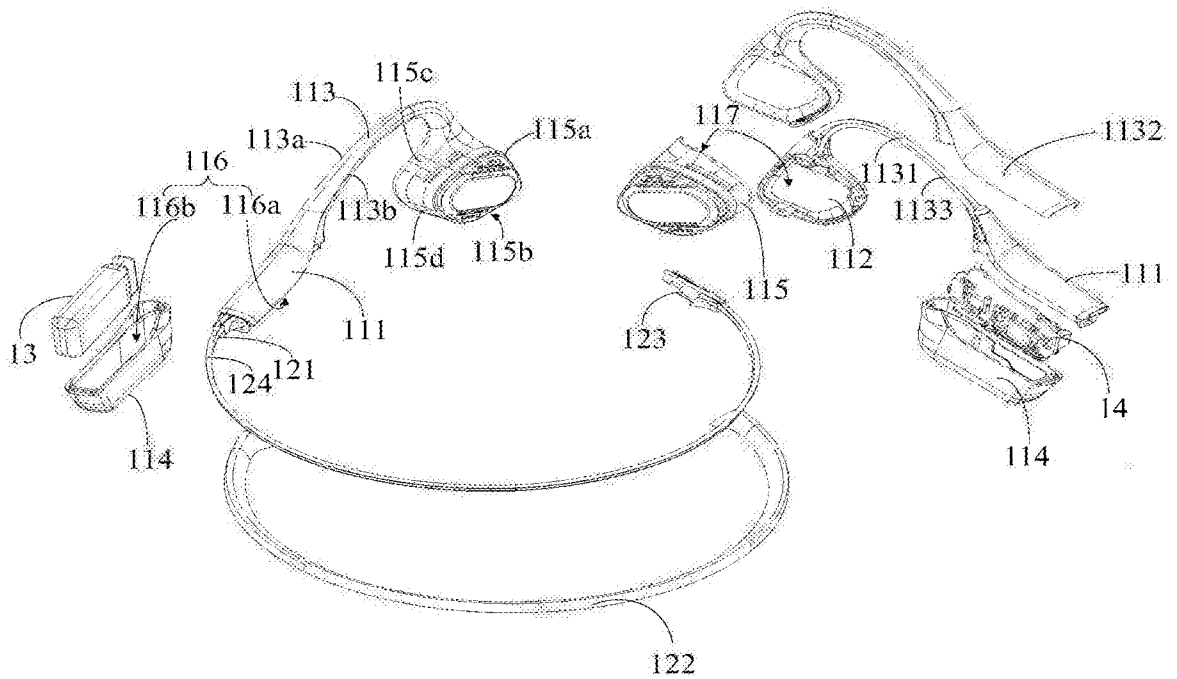


图2

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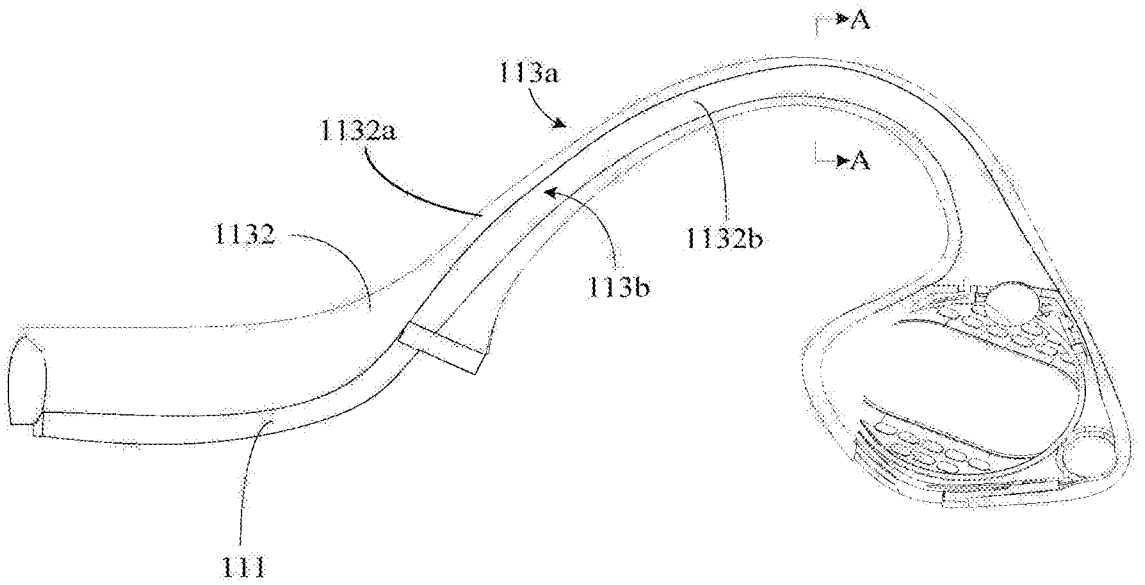


图3

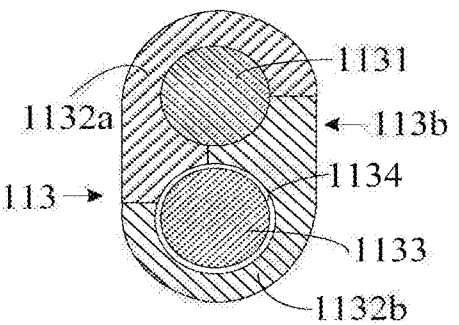


图4

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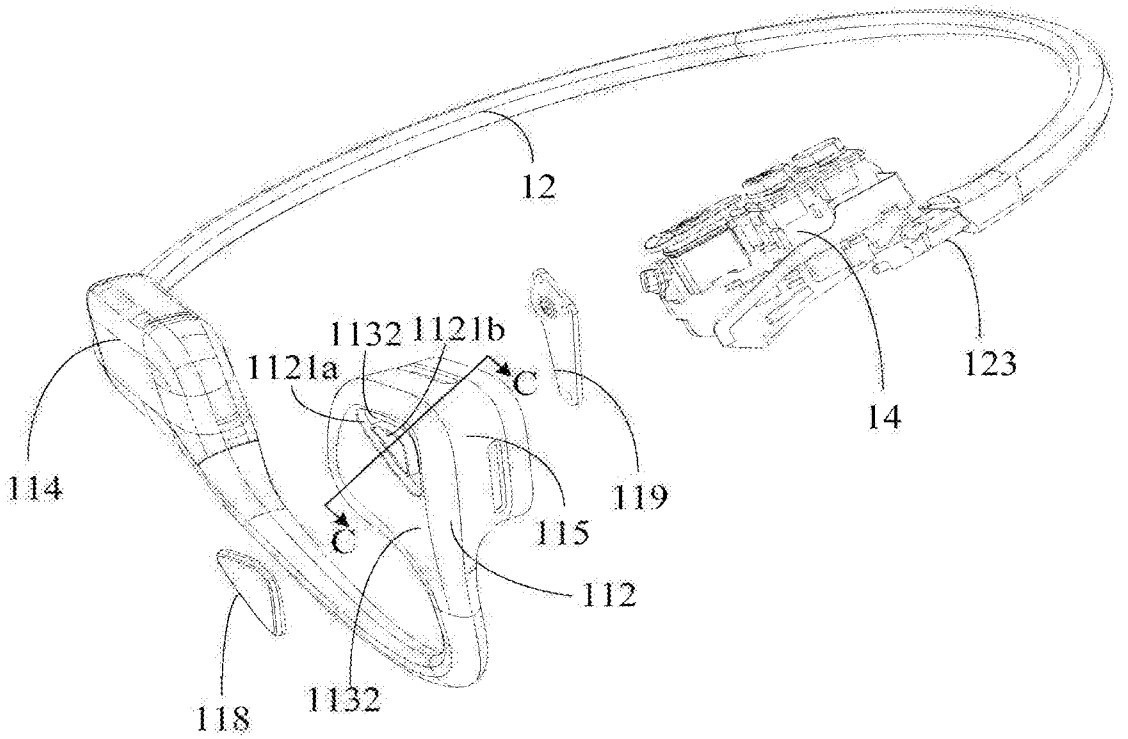


图5

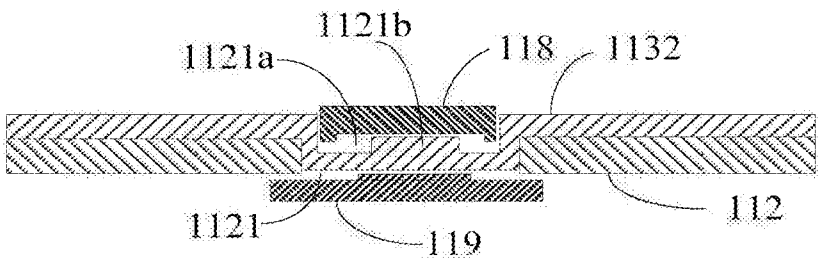


图6

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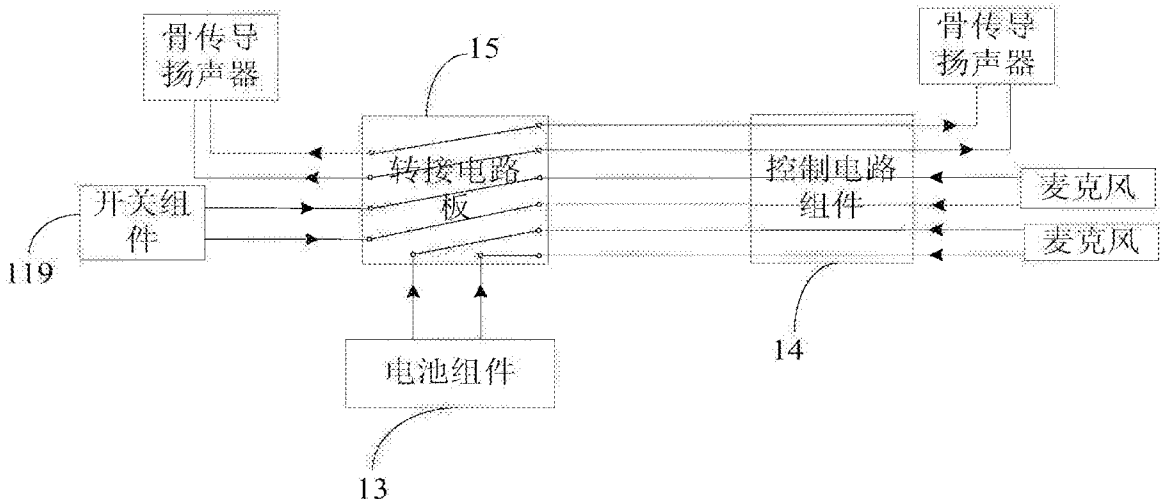


图7

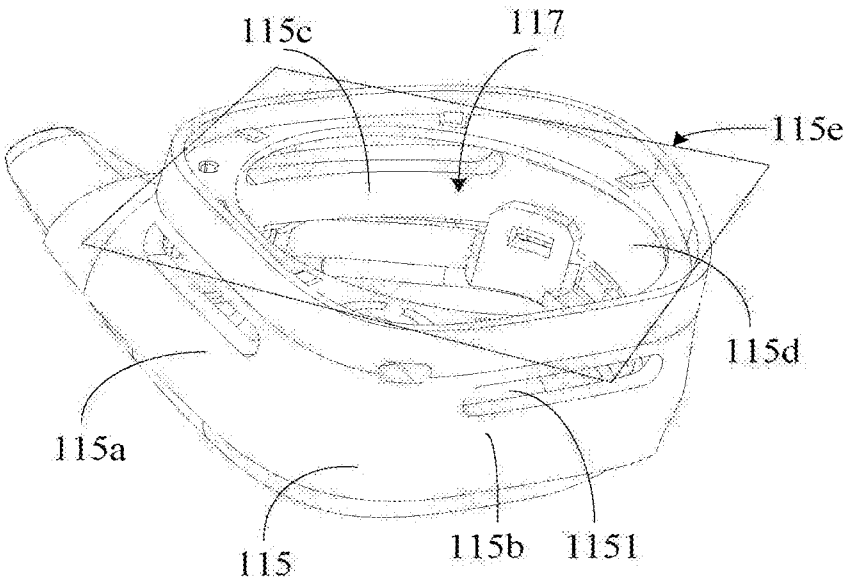


图8

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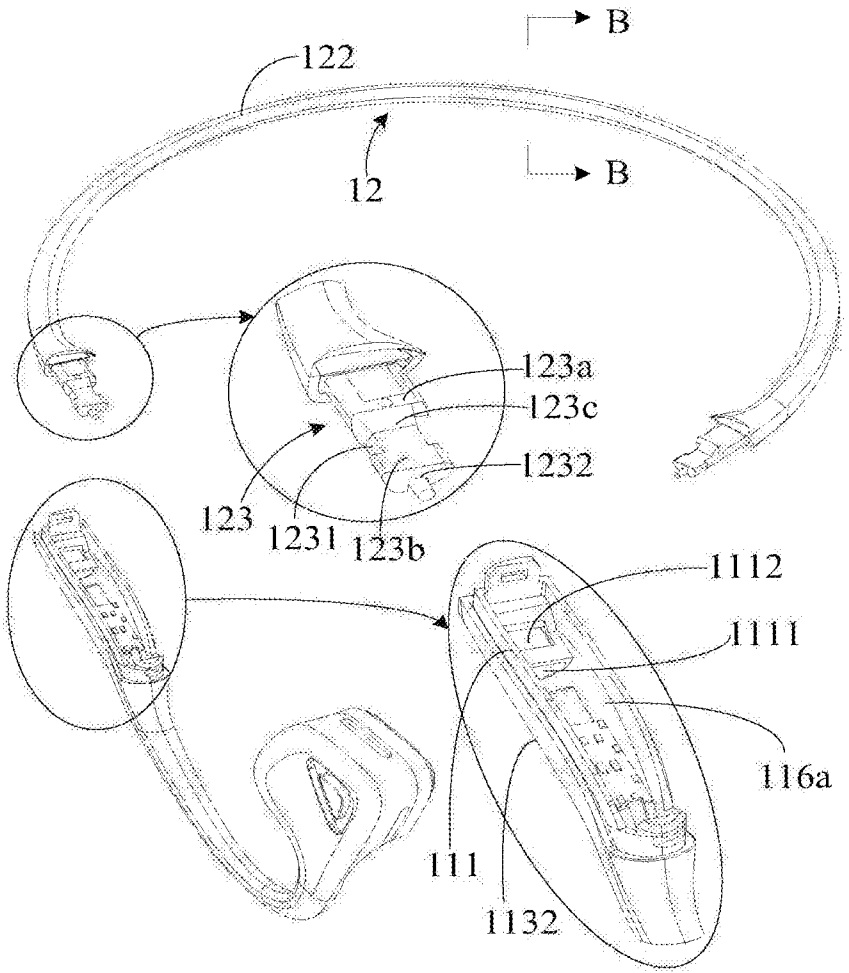


图9

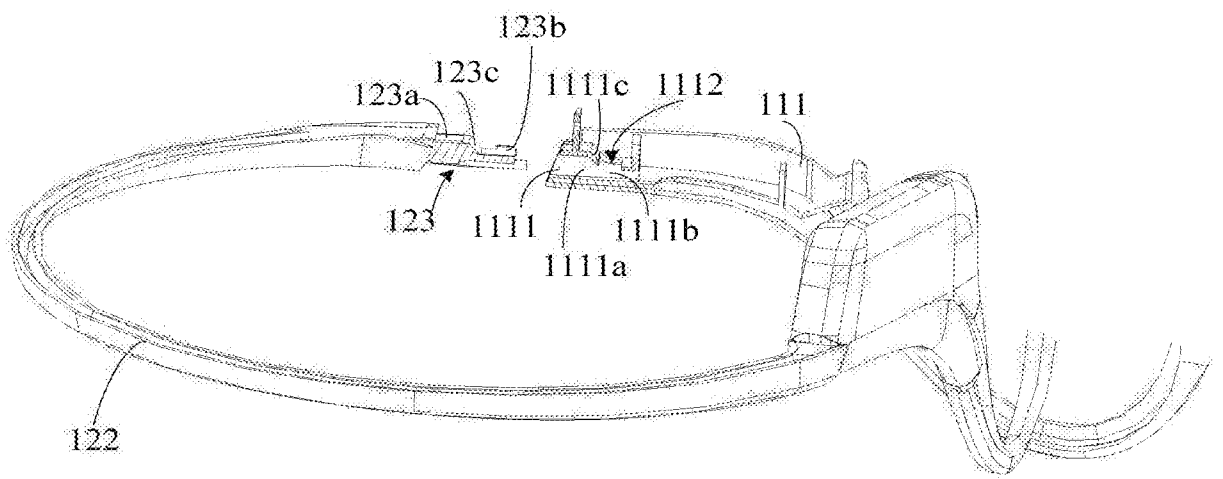


图10

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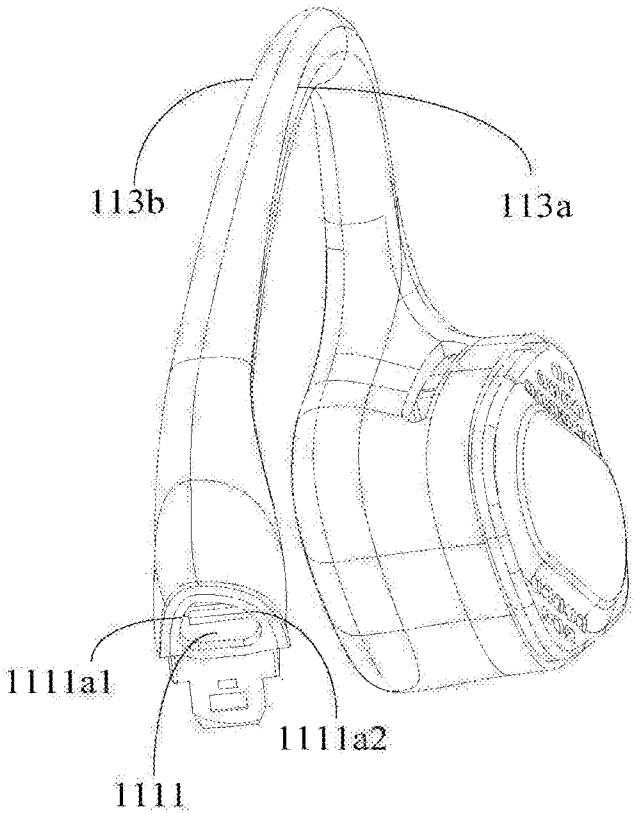


图11

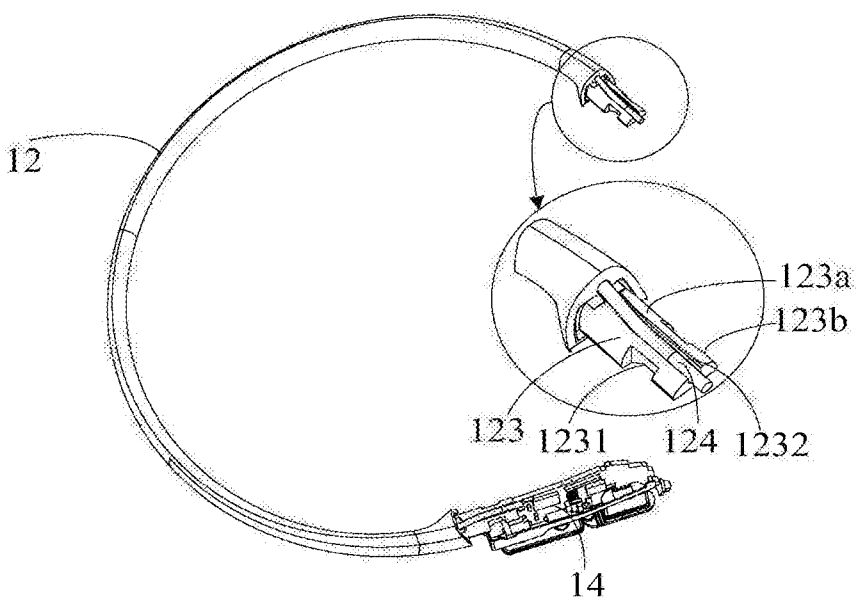


图12

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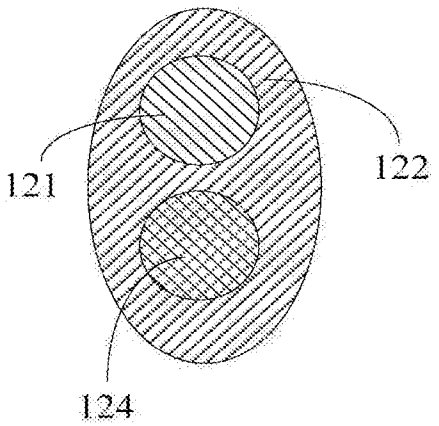


图13

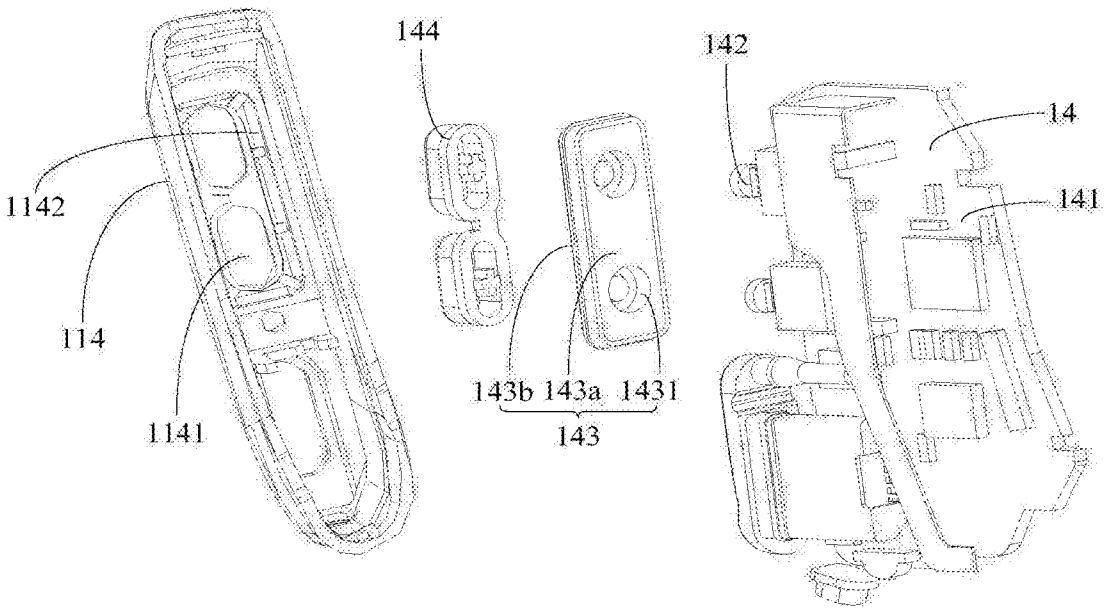


图14

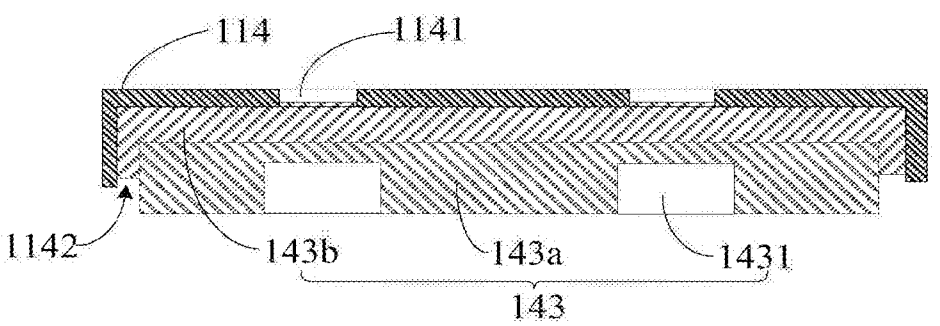


图15

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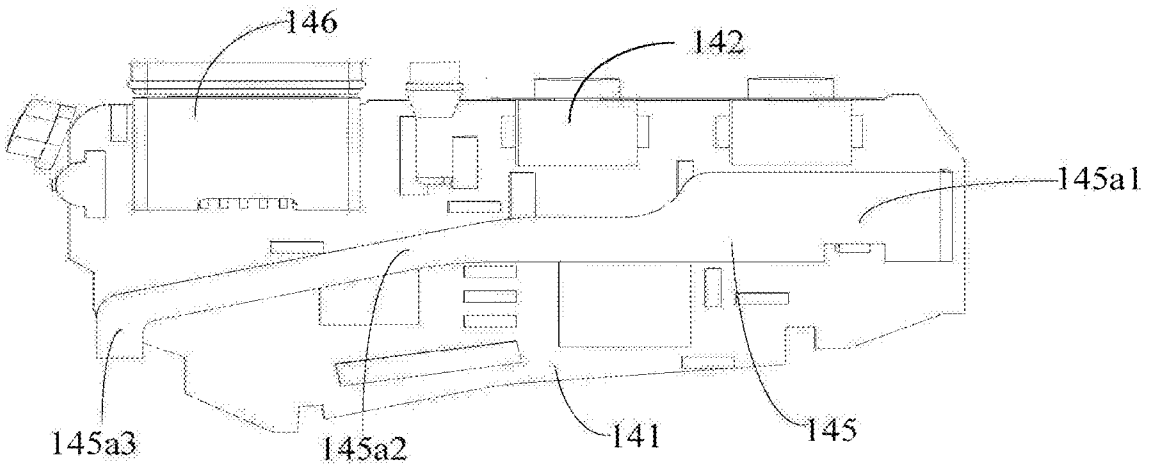


图16

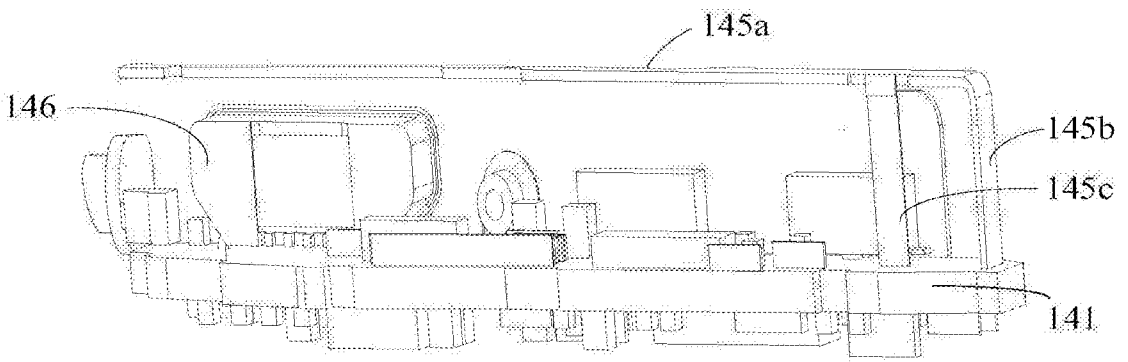


图17

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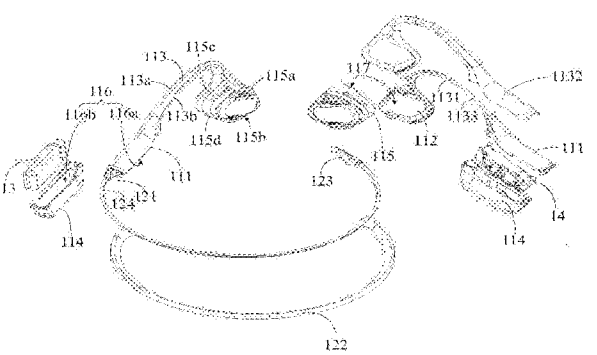
权利要求书2页 说明书11页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机，包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，耳挂组件包括第一壳体、第二壳体、连接部件、第三壳体以及第四壳体，其中连接部件包括两端分别连接第一壳体和第二壳体的第一弹性金属丝以及包覆在第一弹性金属丝上的第一弹性覆层，第三壳体与第一壳体配合，以形成第一容置空间，其中电池组件、控制电路组件分别设置于两个耳挂组件的第一容置空间。后挂组件包括第二弹性金属丝、包覆在第二弹性金属丝上的第二弹性覆层以及设置于第二弹性金属丝两端的接插部，接插部分别与两个耳挂组件的第一壳体接插配合，并固定连接。通过上述方式，本实用新型能够有效增强骨传导耳机的弯折性能以及佩戴舒适性。



CN 207039851 U

1.一种骨传导耳机，其特征在于，所述骨传导耳机包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及第四壳体，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述第一弹性覆层进一步覆盖所述第一壳体与第二壳体的至少部分外表面，所述第三壳体与所述第一壳体配合，以形成用于收容所述电池组件或所述控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，其中所述电池组件设置于所述两个耳挂组件中的一者的所述第一容置空间，所述控制电路组件设置于所述两个耳挂组件中的另一者的所述第一容置空间内；所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

3.根据权利要求2所述的骨传导耳机，其特征在于，所述接插部的侧壁上设置有开槽，所述开槽经所述开孔外露，并用于接收所述胶水或卡止件。

4.根据权利要求3所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

5.根据权利要求4所述的骨传导耳机，其特征在于，所述第二孔段的尺寸设置成使得所述第二接插段与所述第二孔段之间紧配合；和/或，所述第一接插段两侧与所述第一孔段接触的接触面的形状不同；和/或，所述开槽设置于所述第二接插段上。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段；和/或，所述后挂组件进一步包括由所述第二弹性覆层包覆的第二导线组，其中所述第二导线组的两端从所述第二弹性覆层外露，所述接插部的顶面设置有用于容纳所述第二导线组的外露部分的埋线槽。

7.根据权利要求1所述的骨传导耳机，其特征在于，所述第四壳体呈棱柱状设置，其中在所述第四壳体的至少一侧面上设置有条形引音孔，其中所述条形引音孔的长度方向与所述第四壳体的底面平行设置，且所述条形引音孔的长度不小于其所在的所述侧面的宽度的三分之二。

8.根据权利要求1所述的骨传导耳机，其特征在于，用于容纳所述控制电路组件的耳挂组件的第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键

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开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接；和/或，

所述第二壳体上形成有通孔，所述第一弹性覆层覆盖所述通孔，并进一步在所述通孔上方且远离所述第二壳体的一侧形成有按键容置部，所述耳挂组件进一步包括按键和开关组件，其中所述按键设置于所述按键容置部内，所述开关组件设置于所述第二壳体远离所述第一弹性覆层的一侧，并与所述按键下方的所述第一弹性覆层抵接。

9.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上，所述接插部以注塑方式分别固定于所述第二弹性金属丝两端；和/或，所述第一弹性金属丝至少由钛合金材料制成，所述第二弹性金属丝至少由钛合金材料制成。

10.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层的内部进一步设置有用于连通所述第一壳体和所述第二壳体的引线通道，所述耳挂组件进一步包括从所述第一壳体经所述引线通道延伸至所述第二壳体的第一导线组，所述引线通道的径向尺寸设置成允许所述第一导线组沿所述引线通道移动，所述第一导线组用于电连接所述骨传导扬声器与所述电池组件或所述控制电路组件。

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一种骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。现有的骨传导耳机存在着弯折性能与质感较差，导致易损坏和佩戴不舒适等问题。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够改善现有的耳机佩戴不舒适的问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机，包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及第四壳体，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述第一弹性覆层进一步覆盖所述第一壳体与第二壳体的至少部分外表面，所述第三壳体与所述第一壳体配合，以形成用于收容所述电池组件或所述控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，其中所述电池组件设置于所述两个耳挂组件中的一者的所述第一容置空间，所述控制电路组件设置于所述两个耳挂组件中的另一者的所述第一容置空间内；所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型实施例通过第一弹性金属丝连接第一壳体与第二壳体，且第一弹性覆层包覆第一弹性金属丝，第二弹性覆层包覆第二弹性金属丝，由于第一弹性金属丝、第二弹性金属丝、第一弹性覆层以及第二弹性覆层的弹性作用，能够有效增强耳挂的弯折性能，在受到弯折时有效地进行弹性回复而恢复原状，不易变形，且能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题，且第一弹性覆层与第二弹性覆层直接接触人体，佩戴更舒适。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

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[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合

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金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

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[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111

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经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡

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扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路、过流保护电路、过放保护电路、过压保护电路等。例如电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一

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侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，

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例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示)，以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中，开孔1112位于所述第一子容置空间116a内。在其他实施例中，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111，接插部123上具有一凹部，接插孔1111内具有一弹性凸部，接插部123插入接插孔1111时，弹性凸部卡入凹部，以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时，弹性凸部先被挤压，后在弹性恢复力的作用下卡入凹部内。可选的是，接插部123插入接插孔1111的深度为6-11mm，可选为8-10mm。

[0061] 继续参阅图9和图10，可选的是，接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露，并用于接收胶水或卡止件。可选的是，接插部123的至少一个侧壁上设置有开槽1231，例如两个侧壁上均设置有开槽1231。在其他实施例中，可以同时使用胶水和卡止件，例如先使用卡止件固定，再施加胶水进一步固定。在本实施例中，卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10，可选的是，接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动，且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定，可以使得接插部123更稳固地固定在第一壳体111内，增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10，可选的是，开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中，在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b，以使第一接插段123a与第一孔段1111a紧配合，第二接插段123b的开槽1231经开孔1112外露，以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定，能够有效地将后挂与耳挂固定连接。在其他实施例中，开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是，第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定，进一步有效地将后挂与耳挂固定连接，且能够简化结构，使骨传导耳机轻便化。当然，在其他实施例中，第一接插段123a与第

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一孔段1111a之间紧配合，而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11，可选的是，第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同，相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较缓，而外侧面1111a1的弧度变化相对较大，第一接插段123a两侧面相对应设置。当然，在其他实施例中，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较大，而外侧面1111a1的弧度变化相对较小。第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按

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键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐

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渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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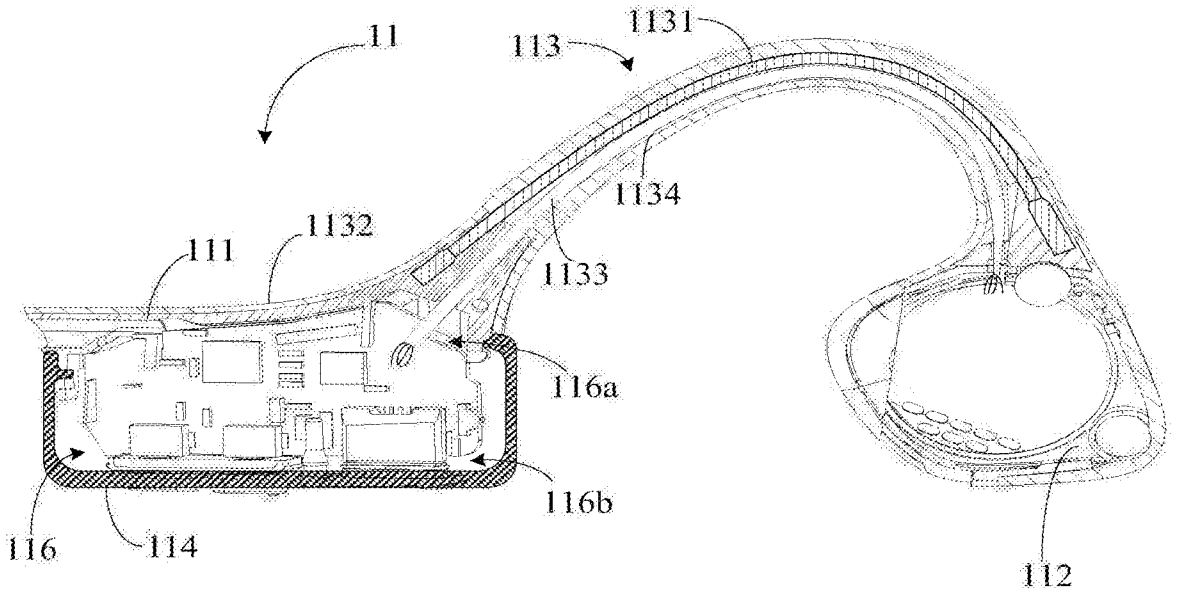


图1

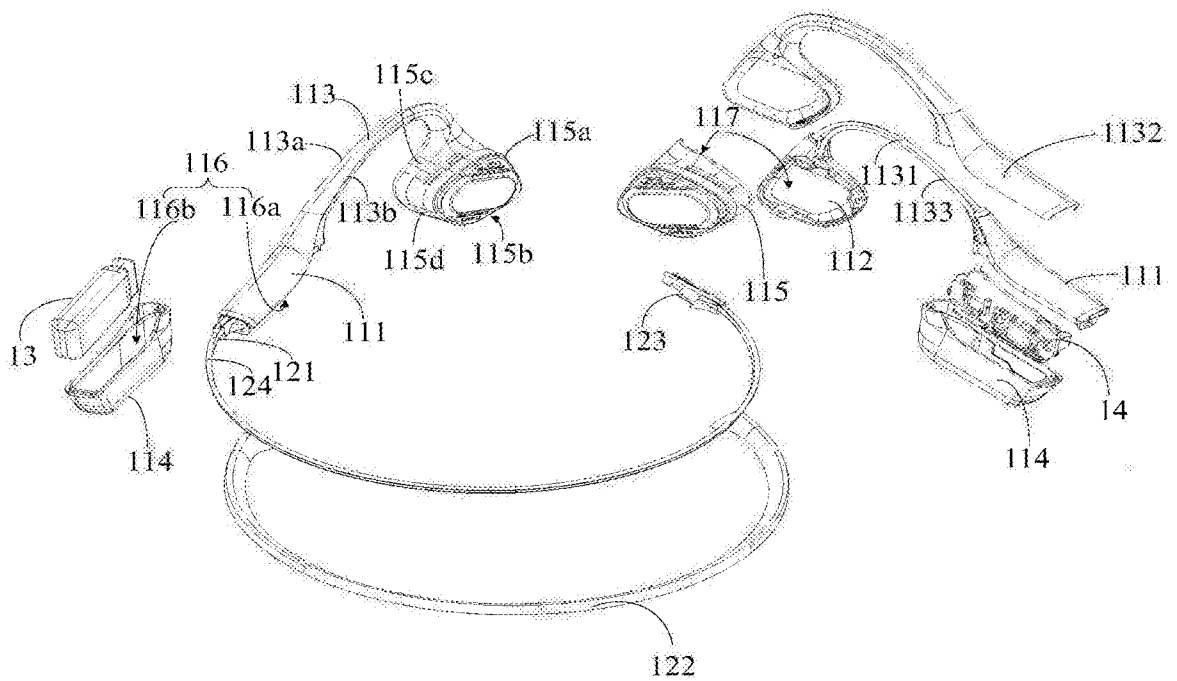


图2

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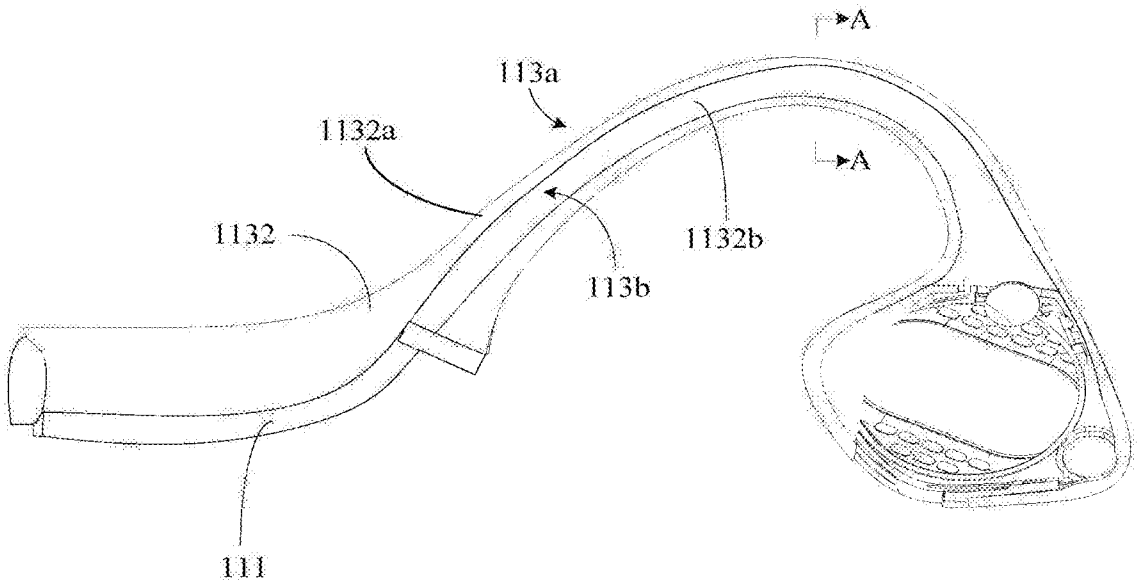


图3

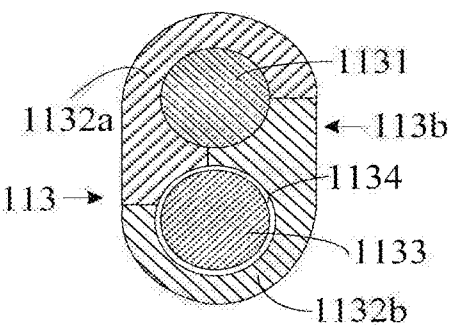


图4

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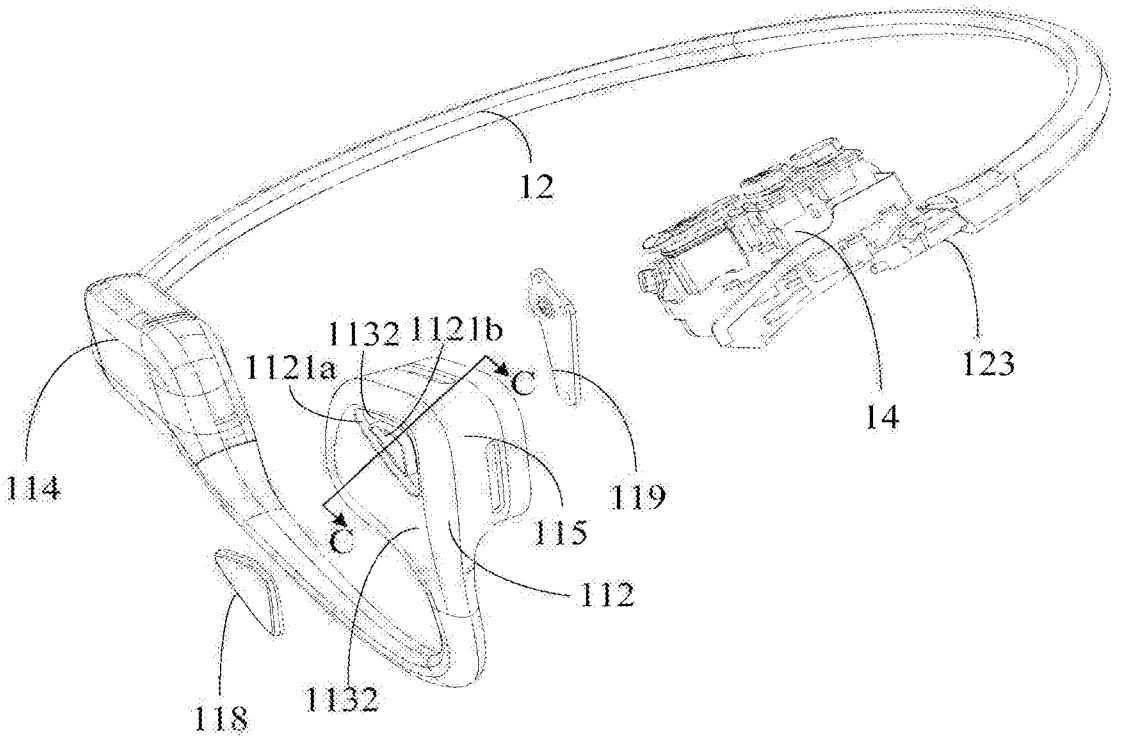


图5

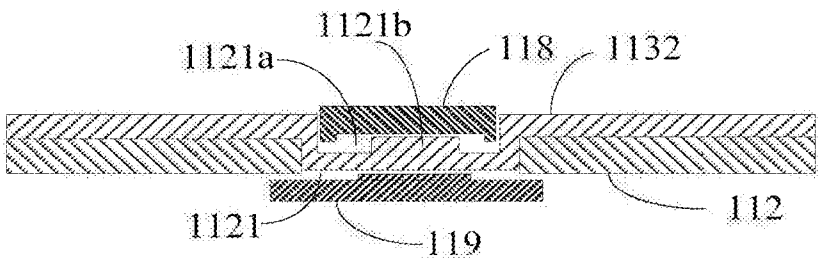


图6

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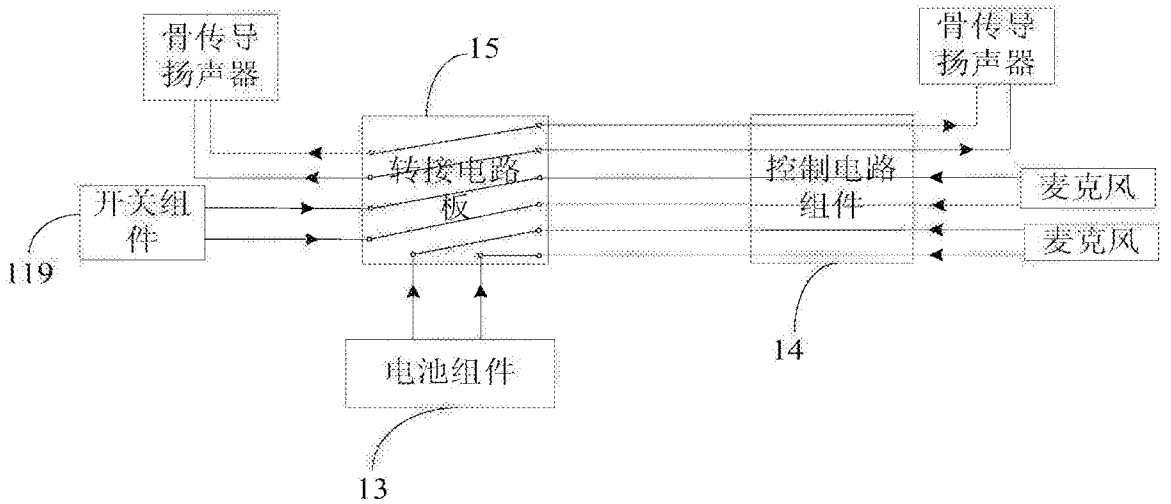


图7

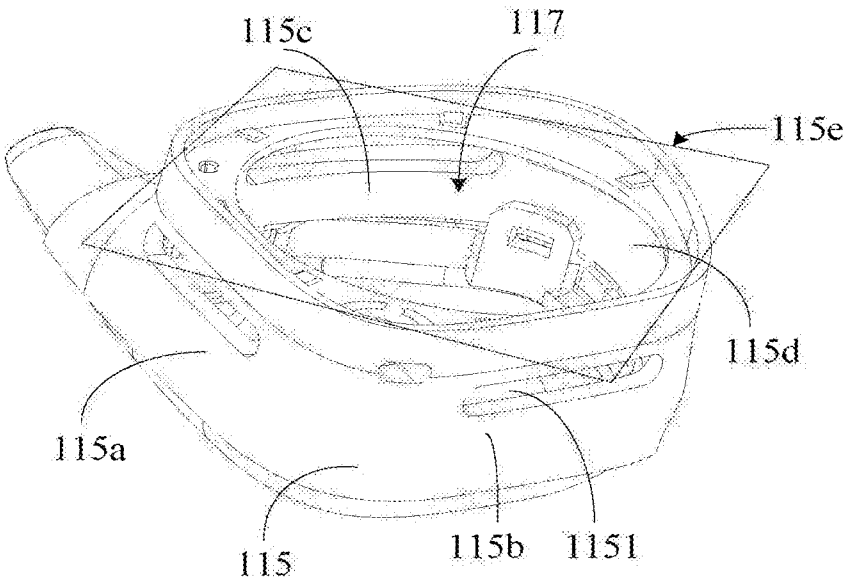


图8

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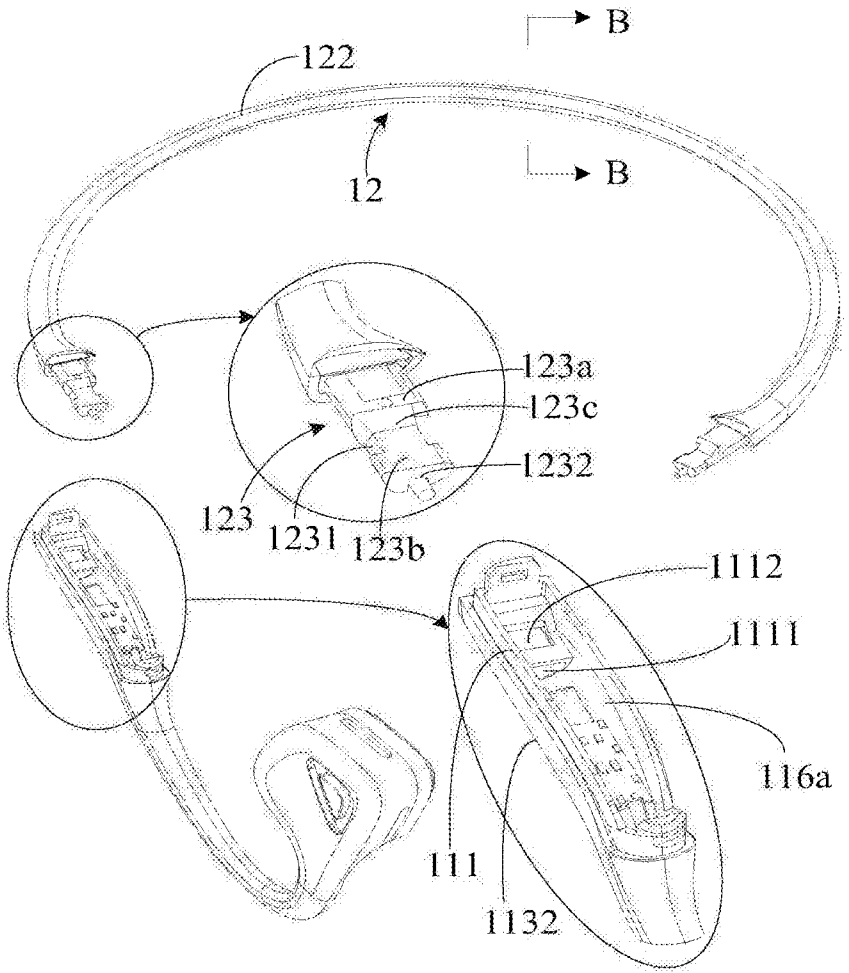


图9

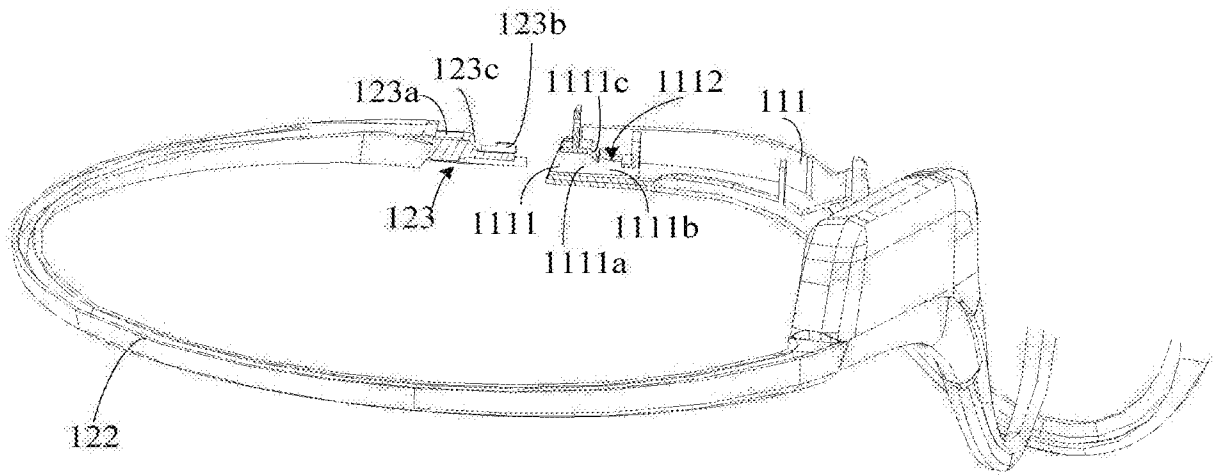


图10

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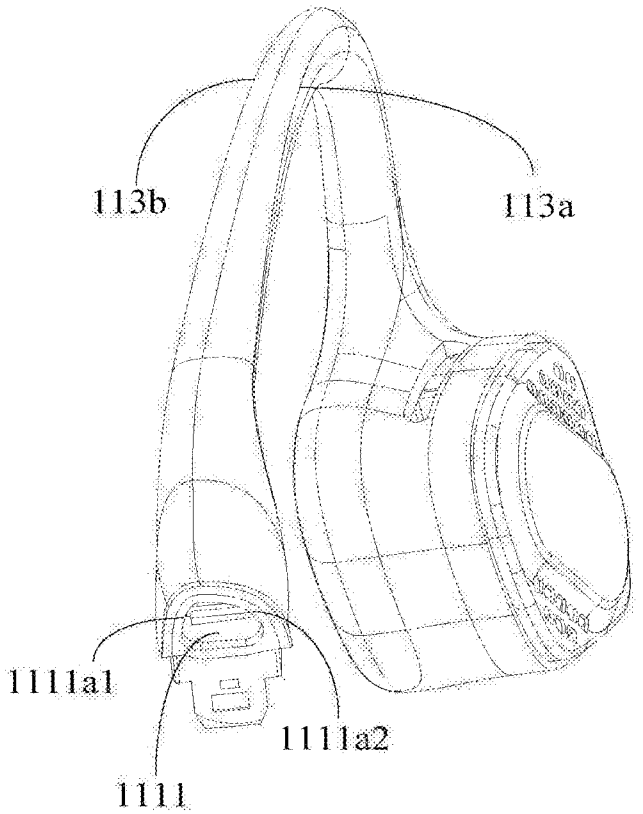


图11

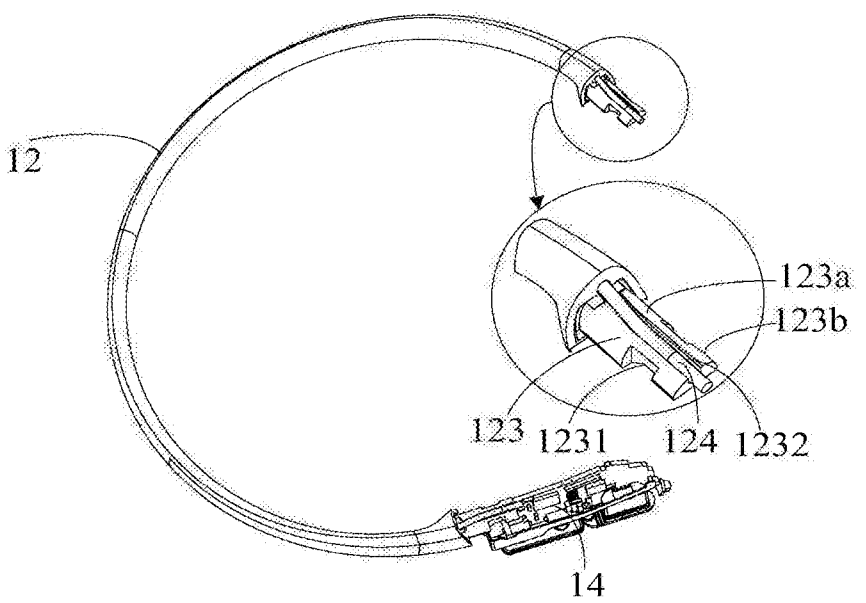


图12

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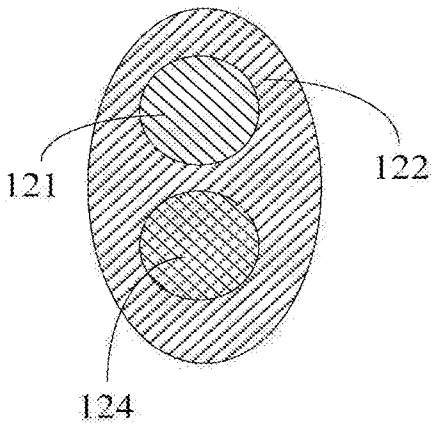


图13

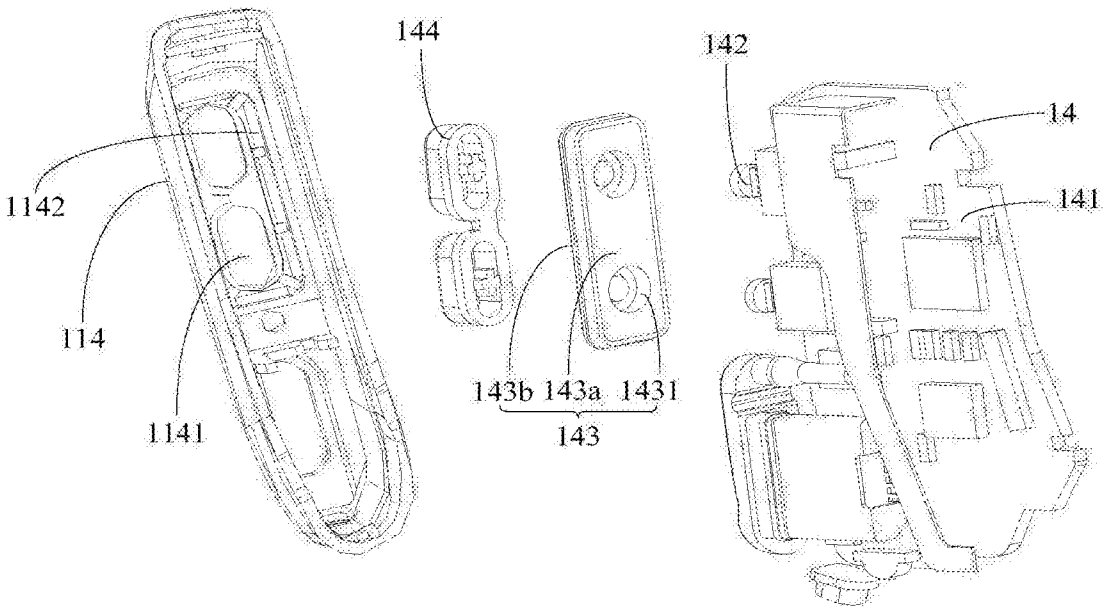


图14

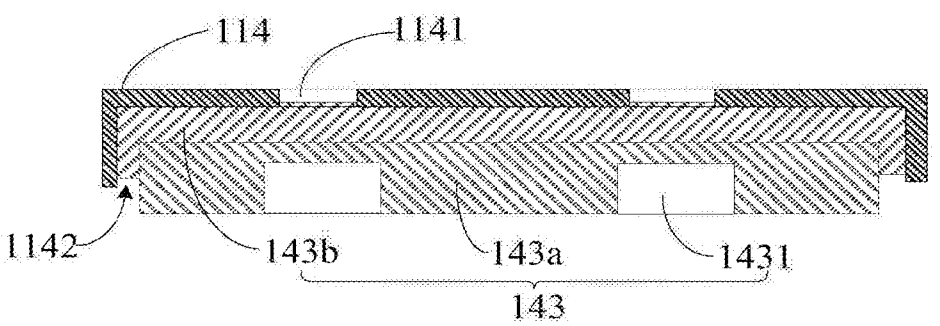


图15

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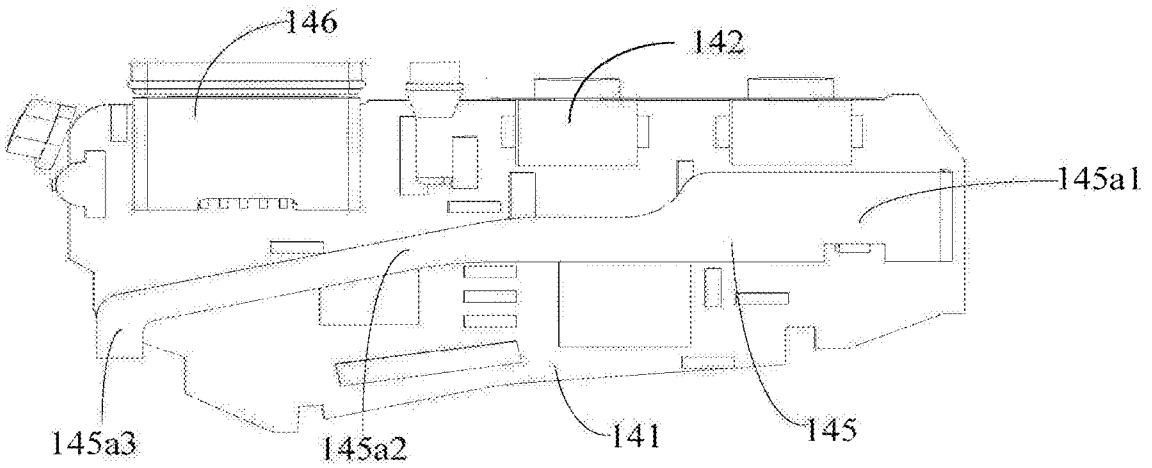


图16

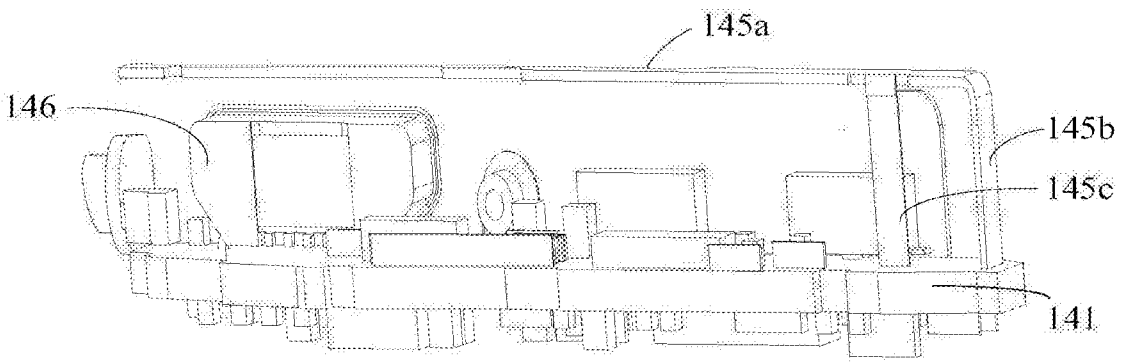


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment, which provides a kind of bone conduction earphone, includes two ear-hang components, the ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, the bone conduction earphone further comprises rear hanging component, hanging component is provided at both ends with Plug Division after described, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, and is fixedly connected.By the above-mentioned means, the utility model enables to bone conduction earphone structure easier.

CN207070282U

China

Other languages: Chinese

Inventor: 李永坚, 张浩锋, 游芬, 齐心

Worldwide applications

2017 CN

Application CN201721044773.5U events

2017-08-18	Application filed by 深圳市新音科技有限公司
2017-08-18	Priority to CN201721044773.5U
2018-03-02	Application granted
2018-03-02	Publication of CN207070282U
2020-07-20	First worldwide family litigation filed

Info: Cited by (2), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.But existing bone conduction earphone each several part is typically all to be fixed by screw etc. Connection, the rear

Claims (10)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes two ear-hang components, the ear-hang component bag The first housing, the second housing and the connection member of connection first housing and the second housing are included, the bone conduction earphone enters One step includes rear hanging component, it is described after hanging component be provided at both ends with Plug Division, the Plug Division respectively with described two ear-hang groups First housing of part patches cooperation, and is fixedly connected.

2. bone conduction earphone according to claim 1, it is characterised in that the end set of first housing has for permitting Perhaps the vertical direction of the jointing holes of Plug Division insertion and the direction of insertion in the Plug Division connect the jointing holes with Outside perforate, to allow into the jointing holes

extension of especially existing bone conduction earphone are needed by screw connection with ear-hang, due to depositing for screw and screw hole The overall dimensions of earphone can not be reduced, assembling the problems such as inconvenient.

Utility model content

The utility model can be effectively improved existing bone and pass mainly solving the technical problems that provide a kind of bone conduction earphone After guide lug machine hang with ear-hang by screw and screw hole be connected caused by earphone size can not reduce the problems such as.

In order to solve the above technical problems, the utility model embodiment, which provides a kind of bone conduction earphone, includes two ear-hang groups Part, the ear-hang component include the first housing, the second housing and the connection member of connection first housing and the second housing, The bone conduction earphone further comprises rear hanging component, and the rear hanging component is provided at both ends with Plug Division, the Plug Division difference Cooperation is patched with the first housing of described two ear-hang components, and is fixedly connected.

Compared with prior art, the beneficial effects of the utility model are : The utility model at rear hanging component both ends by setting Plug Division is put, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, eliminate existing osteoacusis The screw of earphone coordinates fixed mode, can effectively reduce the rear extension of bone conduction earphone and the size of ear-hang link position, with This can reduce earphone size, and be easy to assemble.

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging componenti ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

to apply from the outside through the perforate glue or installation stopper, to cause Plug Division is stated to be fixed in the presence of the glue or stopper in the jointing holes.

3. bone conduction earphone according to claim 2, it is characterised in that fluting is provided with the side wall of the Plug Division, The fluting is exposed through the perforate, and for receiving the glue or stopper.

4. bone conduction earphone according to claim 3, it is characterised in that the connection member connects institute respectively including both ends State the first elastic metallic yarn of the first housing and second housing and be coated on first elastic metallic yarn first Resilient coating, the rear hanging component include the second elastic metallic yarn and the second bullet being coated on second elastic metallic yarn Property coating, the Plug Division is arranged on the second elastic metallic yarn both ends.

5. bone conduction earphone according to claim 4, it is characterised in that the Plug Division includes and the described second elasticity gold The first of category silk connection patches section and patches section with described first and be connected and away from the of second elastic metallic yarn setting Two patch section, and direction of insertion of the jointing holes along the Plug Division is divided into for receiving the described first the first hole for patching section Section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to allow for described second Patch section to move freely in first hole section along the direction of insertion, and make it that described first patches section and first hole Tight fit between section.

6. bone conduction earphone according to claim 5, it is characterised in that second hole section is dimensioned so that institute State second and patch tight fit between section and first hole section ; And/or

Described first patches the shape difference for the contact surface that section both sides contact with first hole section.

7. bone conduction earphone according to claim 5, it is characterised in that the fluting is arranged at described second and patches section On.

8. bone conduction earphone according to claim 5, it is characterised in that described first,

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang component 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

which patches section and described second, patches section The stepped setting in bottom surface and patch section described first and second junction for patching section is provided with the first wedge-shaped mistake Section is crossed, and the junction of first hole section and second hole section is provided with corresponding with the described first wedge-shaped changeover portion Two wedge-shaped changeover portions.

9. bone conduction earphone according to claim 4, it is characterised in that hanging component further comprises by described the after described Second wire group of two resilient coatings cladding, wherein the both ends of the second wire group are exposed from second resilient coating, institute The top surface for stating Plug Division is provided with the groove of sunkening cord of the exposed parts for accommodating the second wire group.

10. bone conduction earphone according to claim 4, it is characterised in that first housing and the second housing respectively with Injection molding manner is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection molding manner and coated In on first elastic metallic yarn, the Plug Division is fixed on the both ends of second elastic metallic yarn with injection molding manner.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user cosily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other

embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally it is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bullets using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial

surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing

112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly, first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping In depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth

Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape Into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 8, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking), the first card Seaming element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first

housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, baitery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold It is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled baitery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-

accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space In 116a, or control circuit component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity

of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is

drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps Include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag Include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Carry out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one it is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for

patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123

are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume.In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-hang components 11, and control circuit component 14 is arranged at In first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by In key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coate liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other cut Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431。

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By

setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes

through and can tapered into, but parallel Width of the width of portion's 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

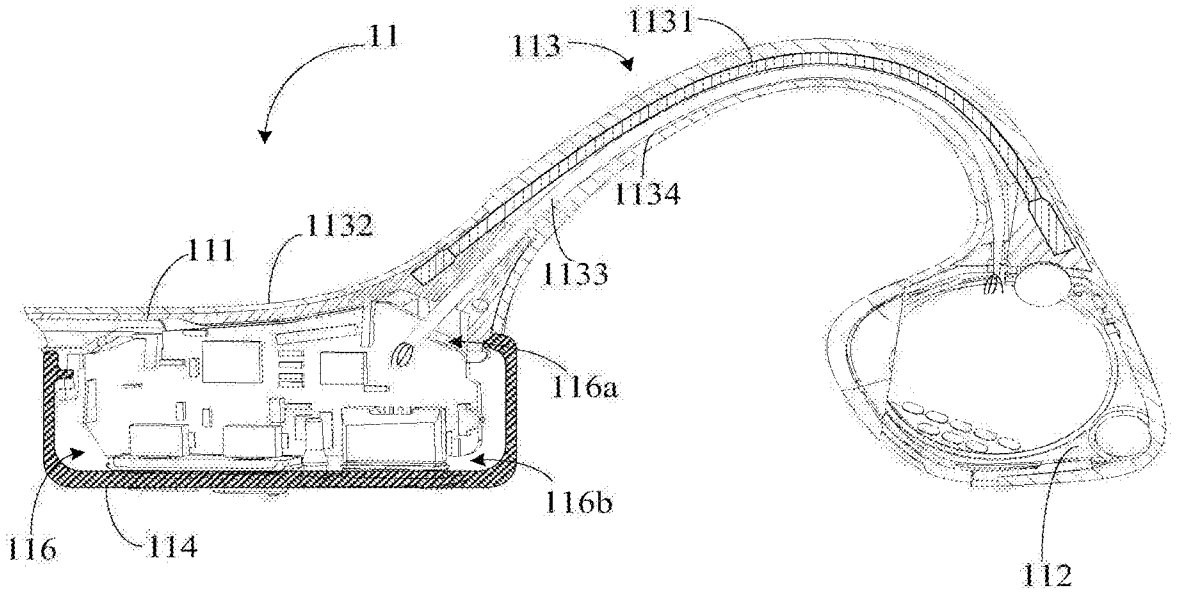


图1

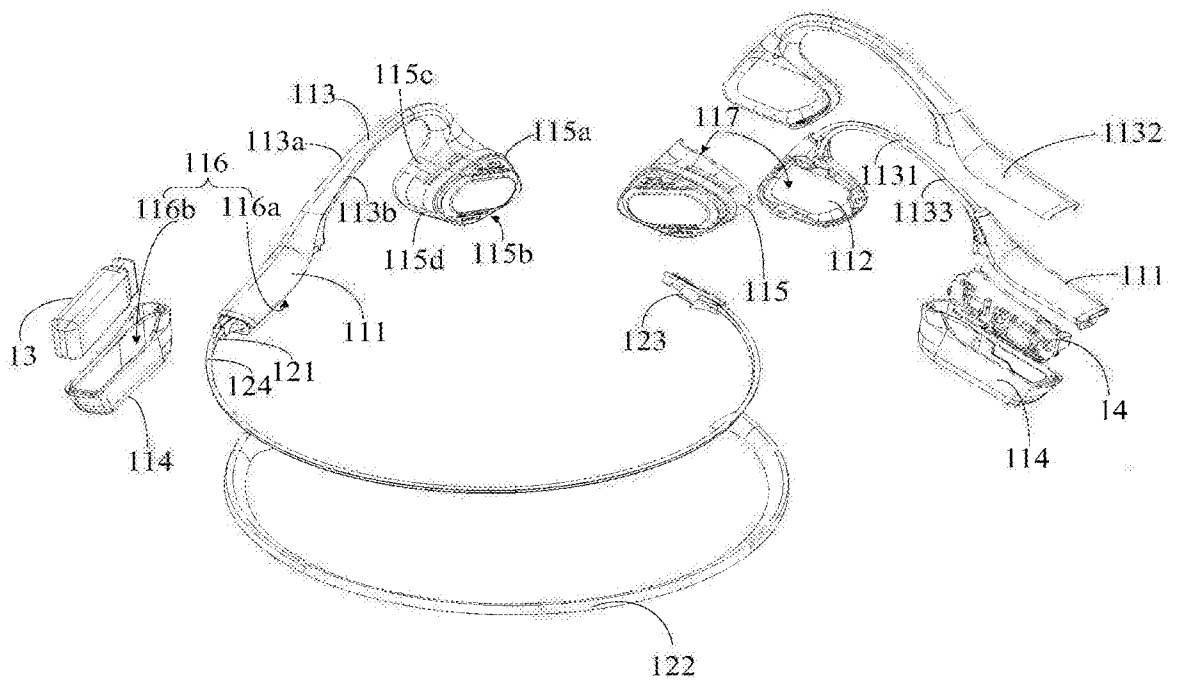


图2

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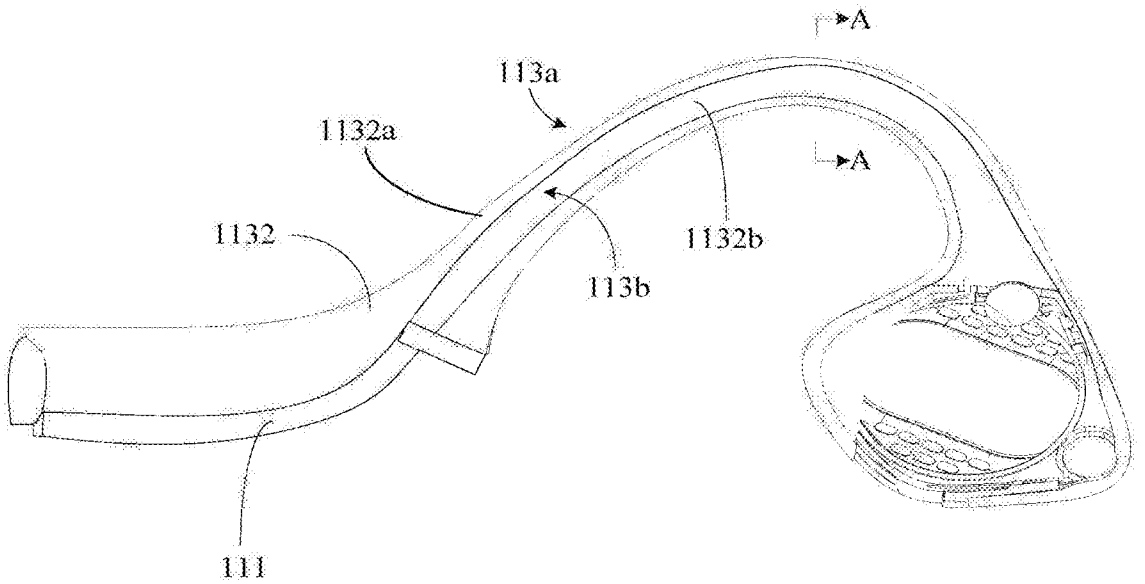


图3

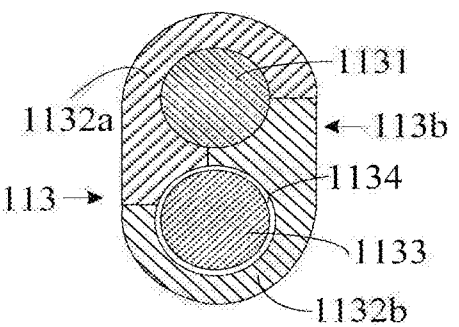


图4

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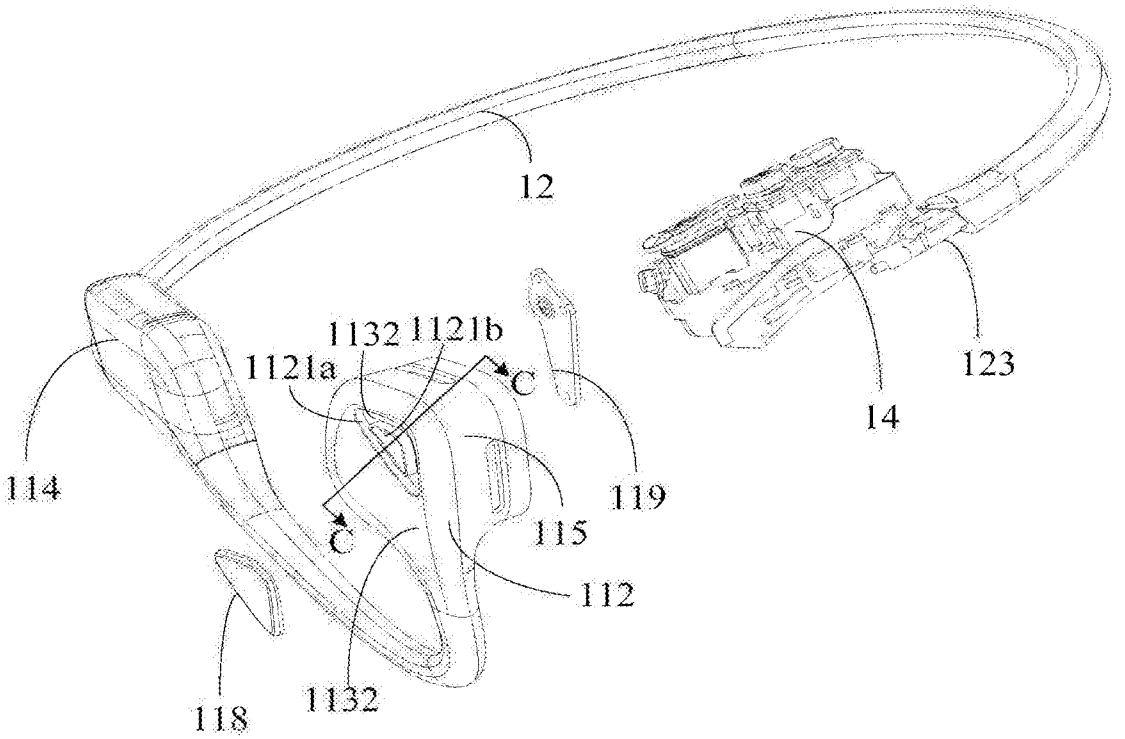


图5

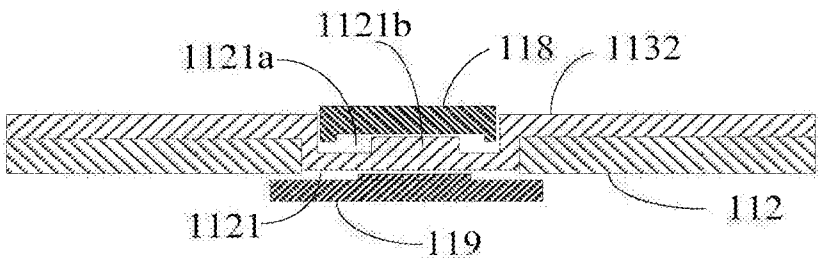


图6

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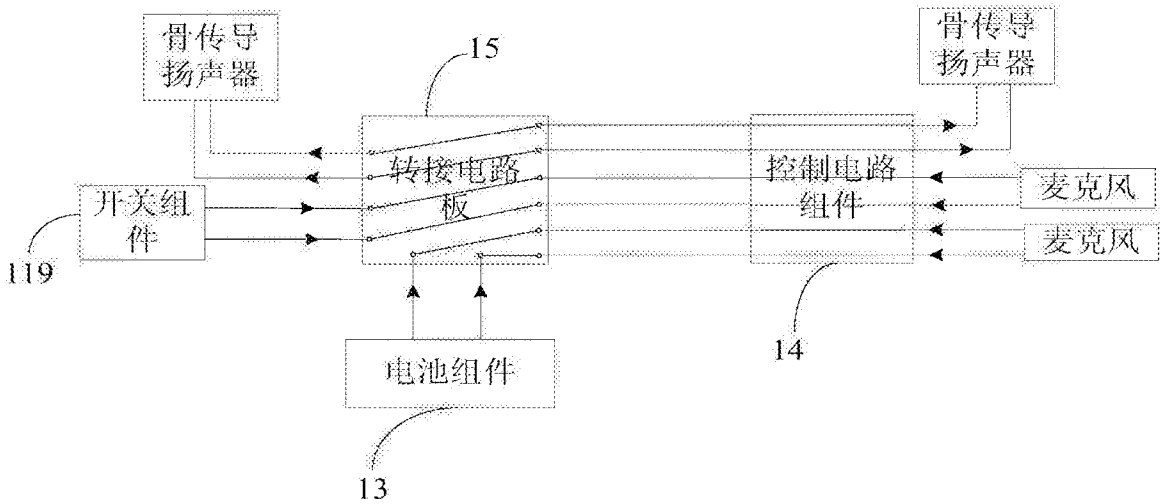


图7

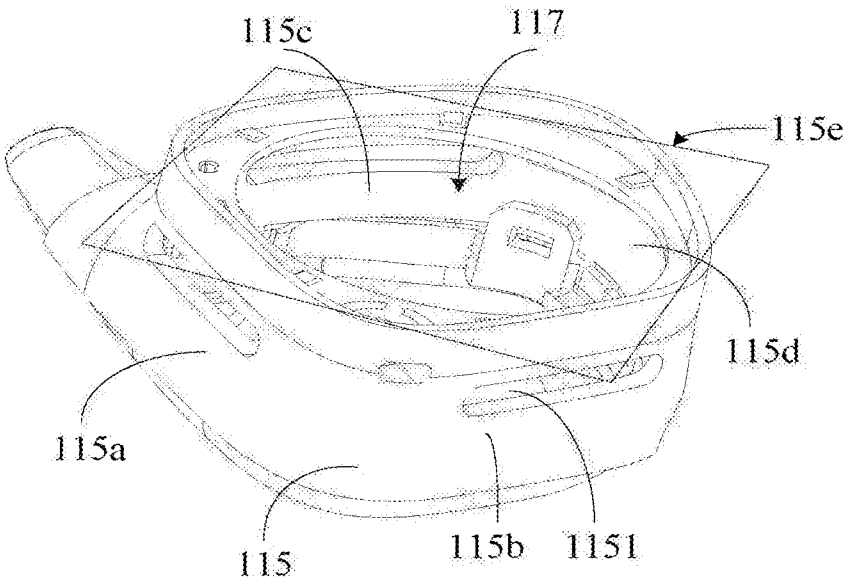


图8

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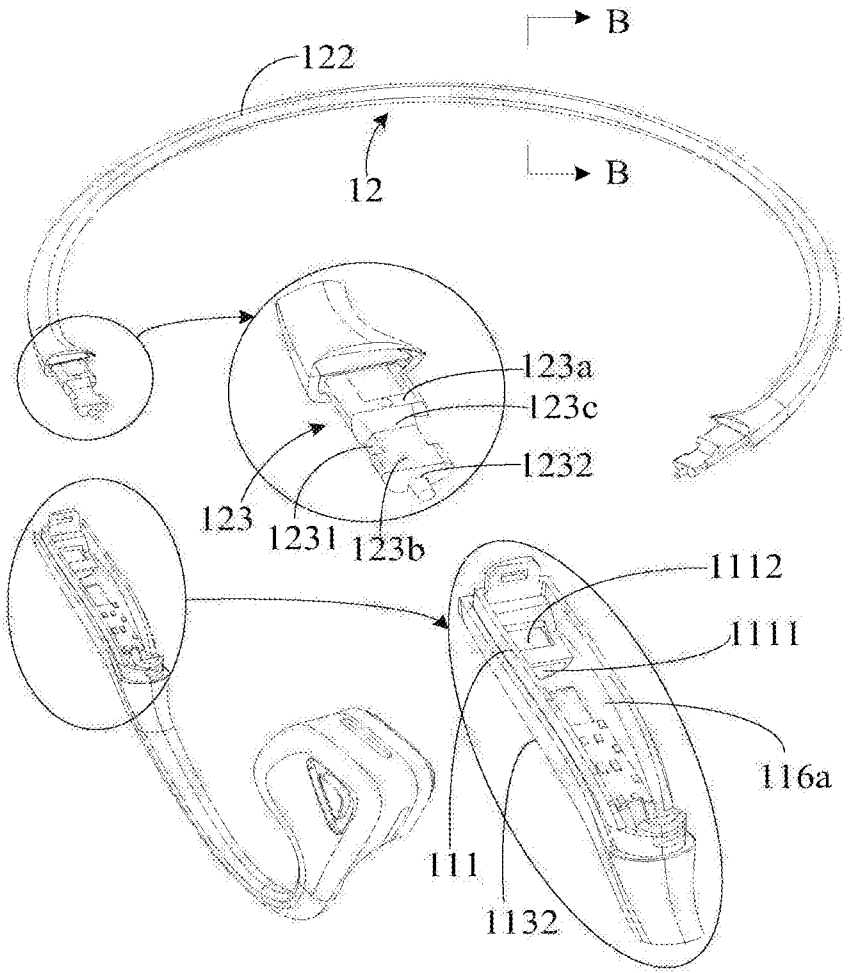


图9

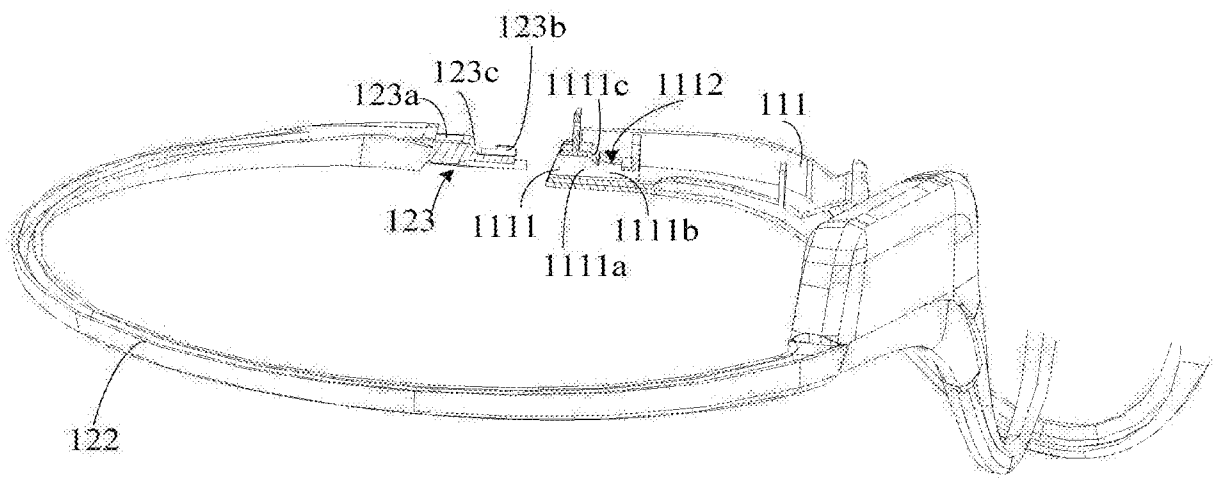


图10

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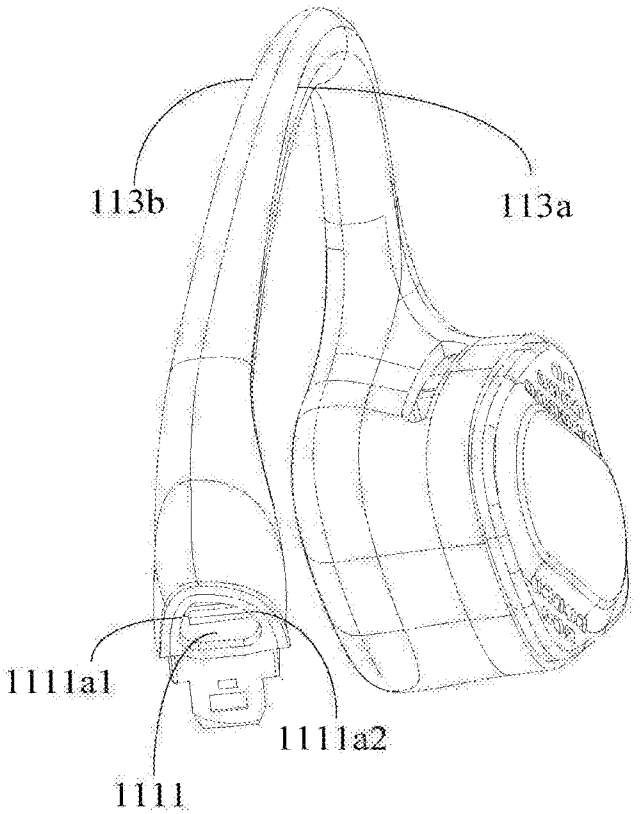


图11

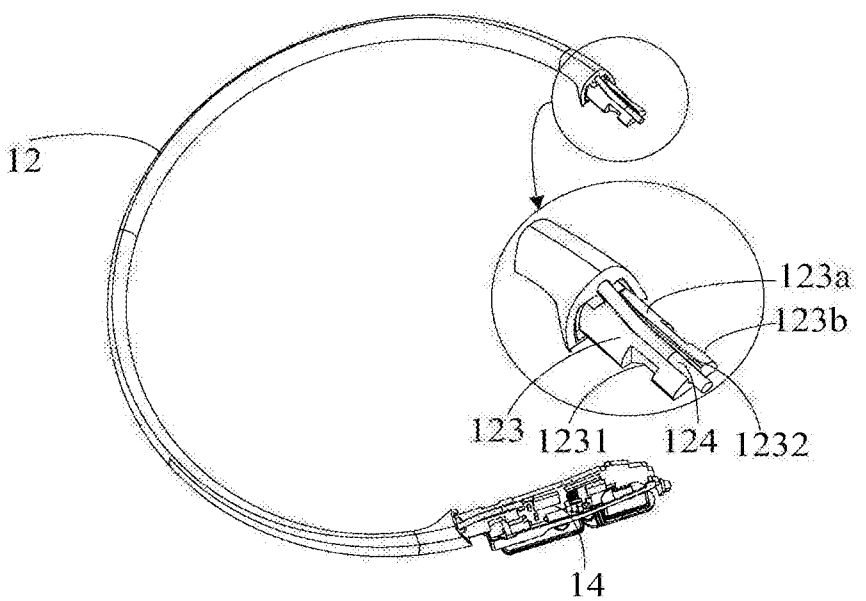


图12

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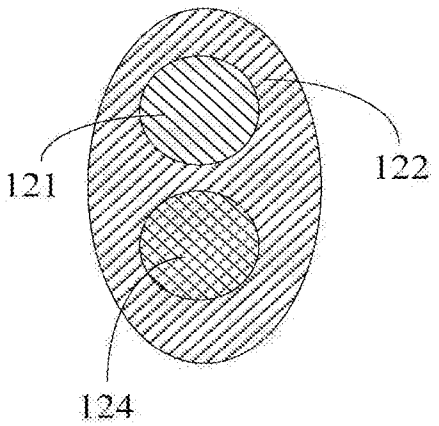


图13

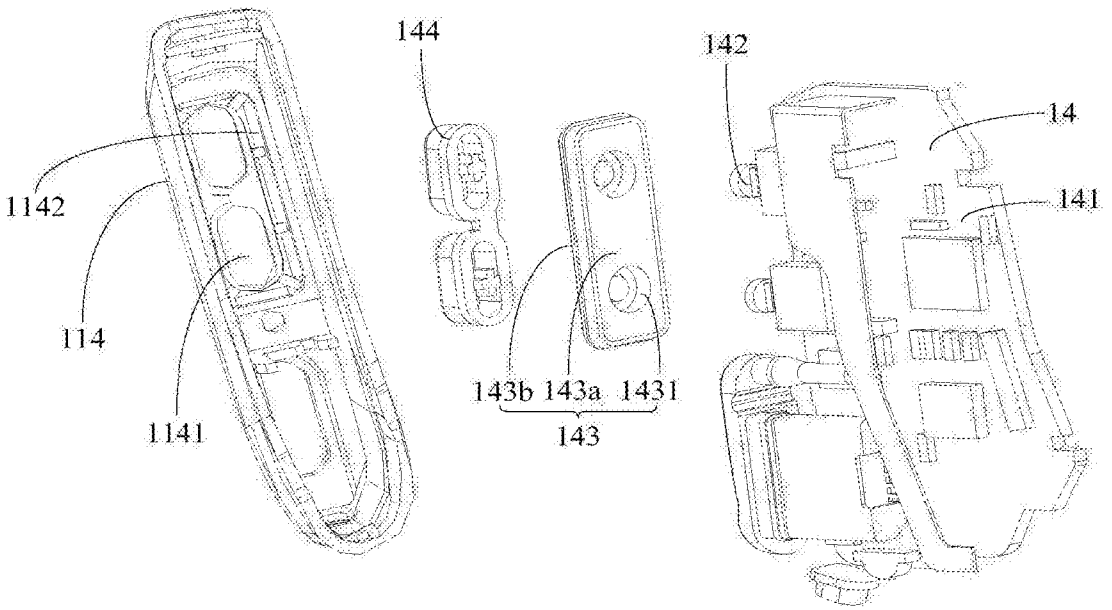


图14

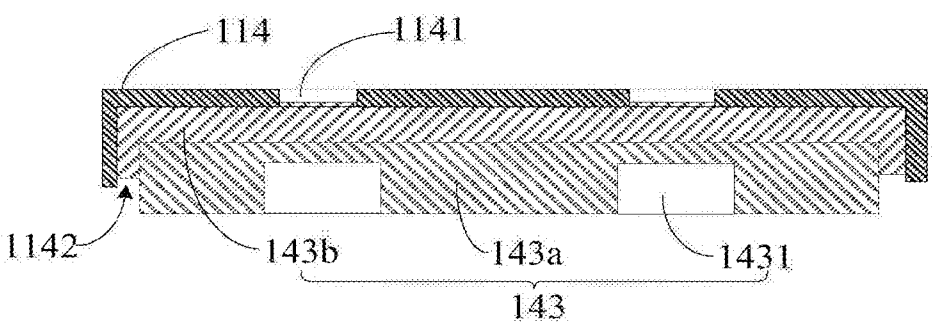


图15

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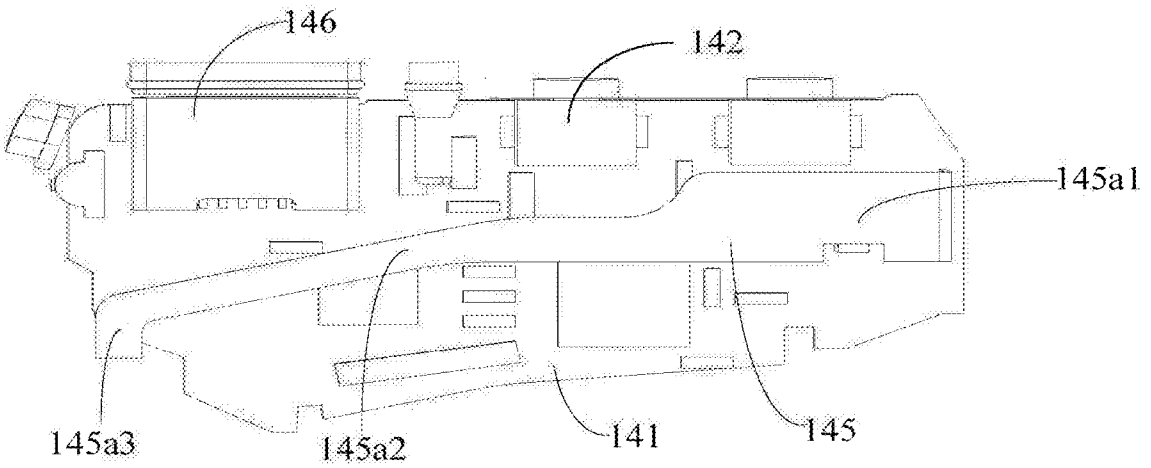


图16

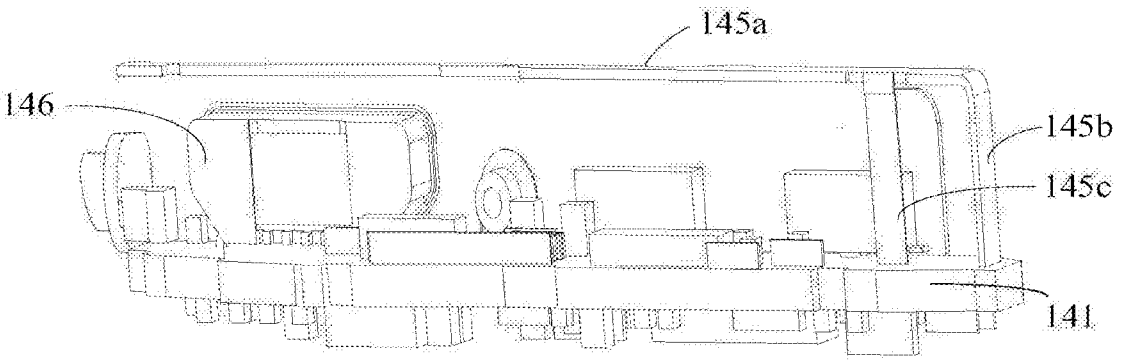


图17

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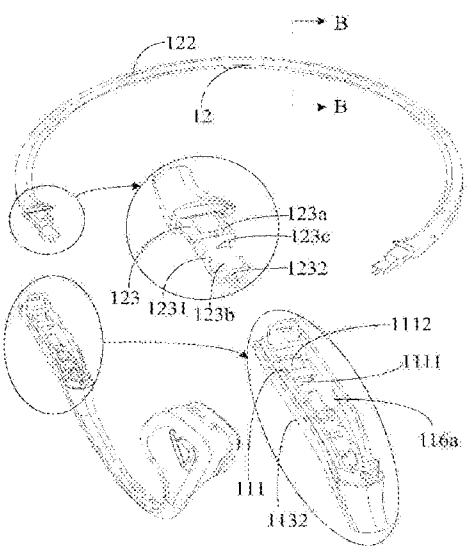
权利要求书1页 说明书10页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。通过上述方式，本实用新型能够使得骨传导耳机结构更简便。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

3.根据权利要求2所述的骨传导耳机，其特征在于，所述接插部的侧壁上设置有开槽，所述开槽经所述开孔外露，并用于接收所述胶水或卡止件。

4.根据权利要求3所述的骨传导耳机，其特征在于，所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述后挂组件包括第二弹性金属丝以及包覆在所述第二弹性金属丝上的第二弹性覆层，所述接插部设置在第二弹性金属丝两端。

5.根据权利要求4所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述第二孔段的尺寸设置成使得所述第二接插段与所述第一孔段之间紧配合；和/或，

所述第一接插段两侧与所述第一孔段接触的接触面的形状不同。

7.根据权利要求5所述的骨传导耳机，其特征在于，所述开槽设置于所述第二接插段上。

8.根据权利要求5所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段。

9.根据权利要求4所述的骨传导耳机，其特征在于，所述后挂组件进一步包括由所述第二弹性覆层包覆的第二导线组，其中所述第二导线组的两端从所述第二弹性覆层外露，所述接插部的顶面设置有用于容纳所述第二导线组的外露部分的埋线槽。

10.根据权利要求4所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上，所述接插部以注塑方式固定于所述第二弹性金属丝的两端。

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一种骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。但是现有的骨传导耳机各部分一般都是通过螺丝等进行固定连接，尤其是现有的骨传导耳机的后挂与耳挂需要通过螺丝连接，由于螺丝及螺丝孔的存在使得耳机的整体尺寸无法缩小、组装不方便等问题。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够有效改善现有骨传导耳机后挂与耳挂通过螺丝和螺丝孔连接所带来的耳机尺寸无法缩小等问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型通过在后挂组件两端设置接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，取消了现有骨传导耳机的螺丝配合固定的方式，能够有效减小骨传导耳机的后挂与耳挂连接位置的尺寸，以此可以减小耳机尺寸，且便于组装。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

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[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料

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层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于

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第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一

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端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路，过流保护电路、过放保护电路、过压保护电路等。例如

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电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形

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引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，

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以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示),以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中,开孔1112位于所述第一子容置空间116a内。在其他实施例中,第一壳体111的端部设置有用于允许接插部123插入的接插孔1111,接插部123上具有一凹部,接插孔1111内具有一弹性凸部,接插部123插入接插孔1111时,弹性凸部卡入凹部,以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时,弹性凸部先被挤压,后在弹性恢复力的作用下卡入凹部内。可选的是,接插部123插入接插孔1111的深度为6-11mm,可选为8-10mm。

[0061] 继续参阅图9和图10,可选的是,接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露,并用于接收胶水或卡止件。可选的是,接插部123的至少一个侧壁上设置有开槽1231,例如两个侧壁上均设置有开槽1231。在其他实施例中,可以同时使用胶水和卡止件,例如先使用卡止件固定,再施加胶水进一步固定。在本实施例中,卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10,可选的是,接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动,且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定,可以使得接插部123更稳固地固定在第一壳体111内,增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10,可选的是,开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中,在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b,以使第一接插段123a与第一孔段1111a紧配合,第二接插段123b的开槽1231经开孔1112外露,以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定,能够有效地将后挂与耳挂固定连接。在其他实施例中,开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是,第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定,进一步有效地将后挂与耳挂固定连接,且能够简化结构,使骨传导耳机轻便化。当然,在其他实施例中,第一接插段123a与第一孔段1111a之间紧配合,而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11,可选的是,第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同,相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较缓,而外侧面1111a1的弧度变化相对较大,第一接插段123a两侧面相对应设置。当然,在其他实施例中,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较大,而外侧面1111a1的弧度变化相对较小。

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第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，

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以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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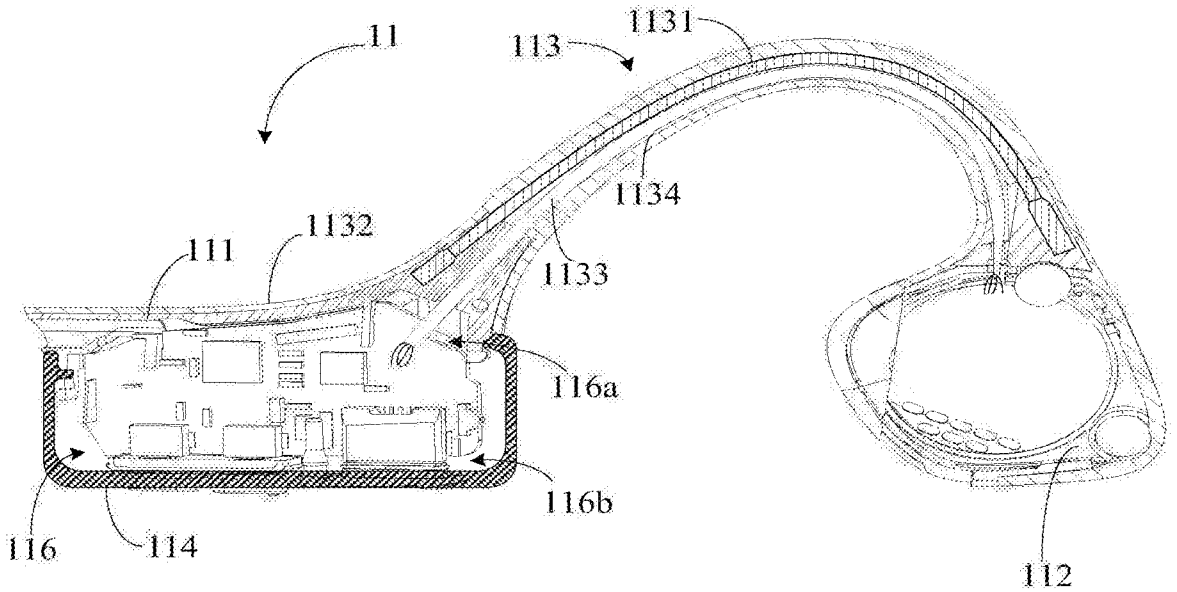


图1

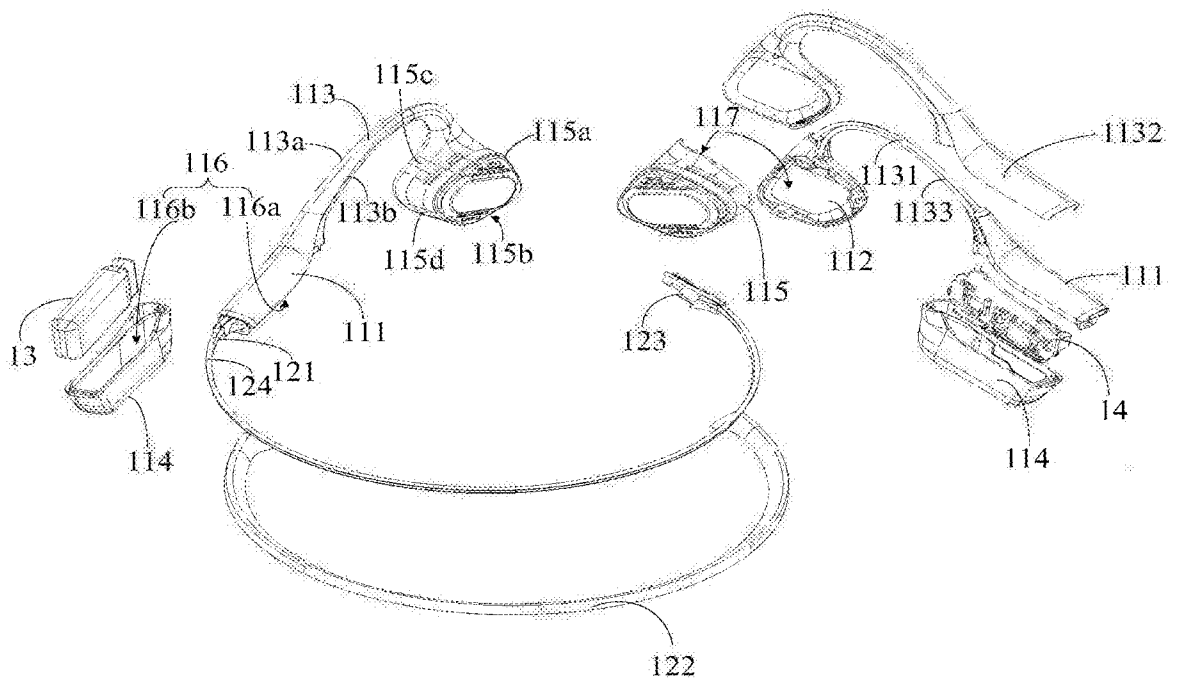


图2

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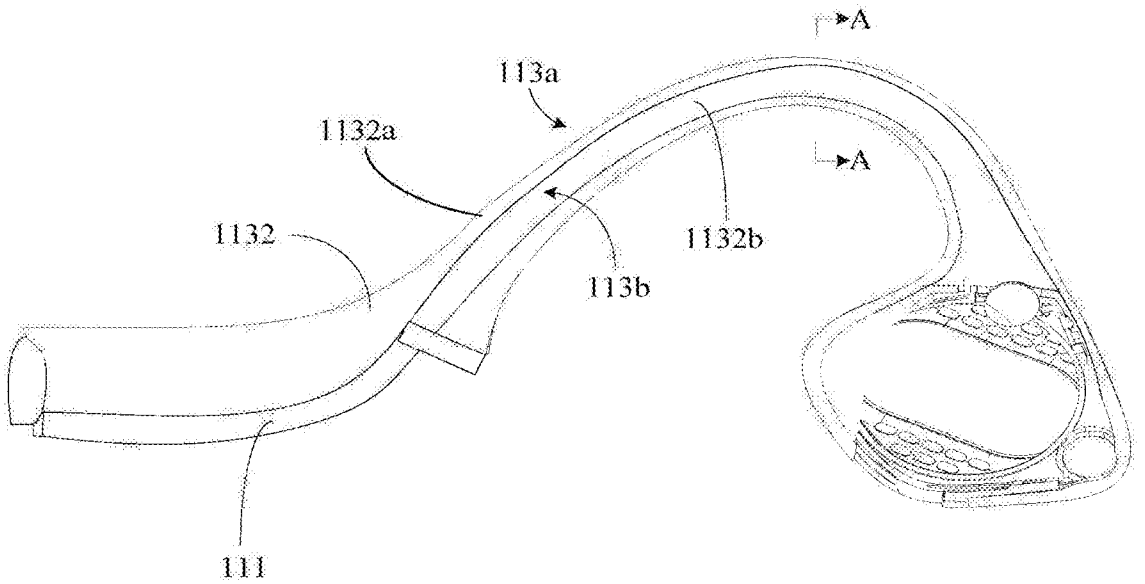


图3

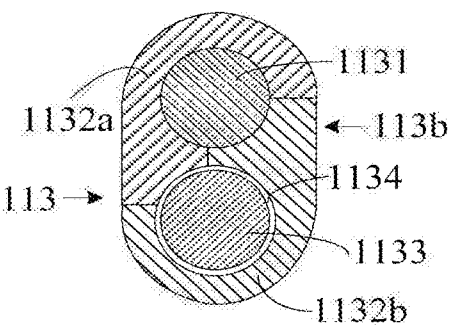


图4

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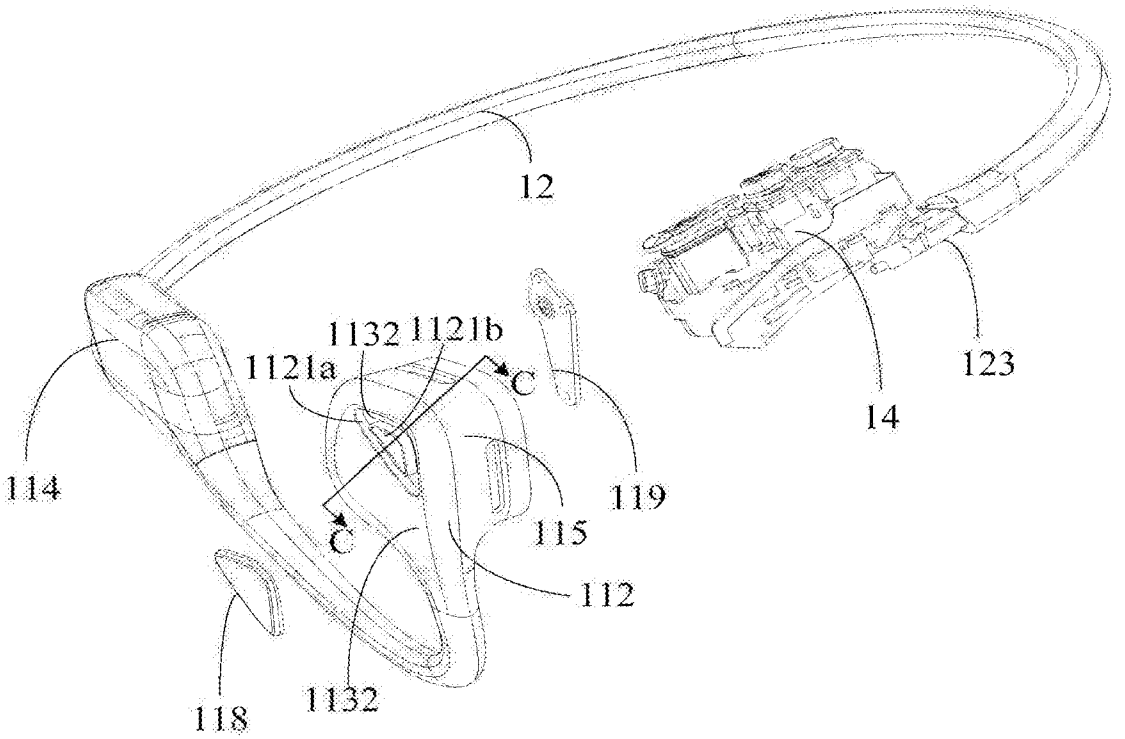


图5

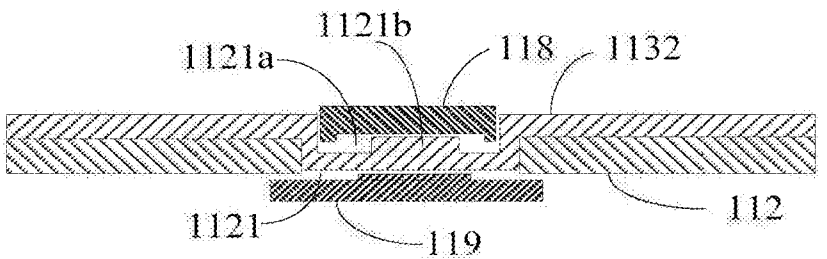


图6

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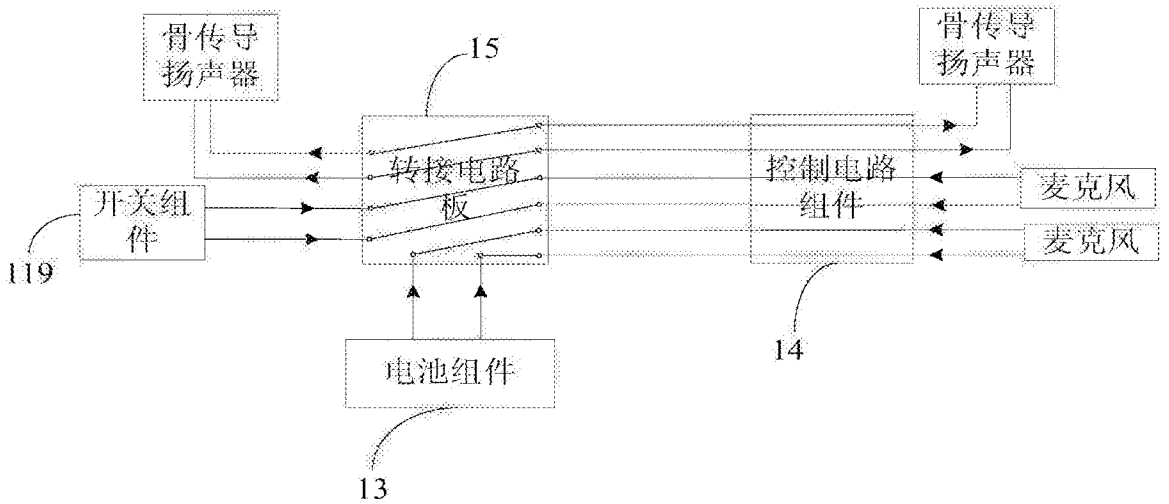


图7

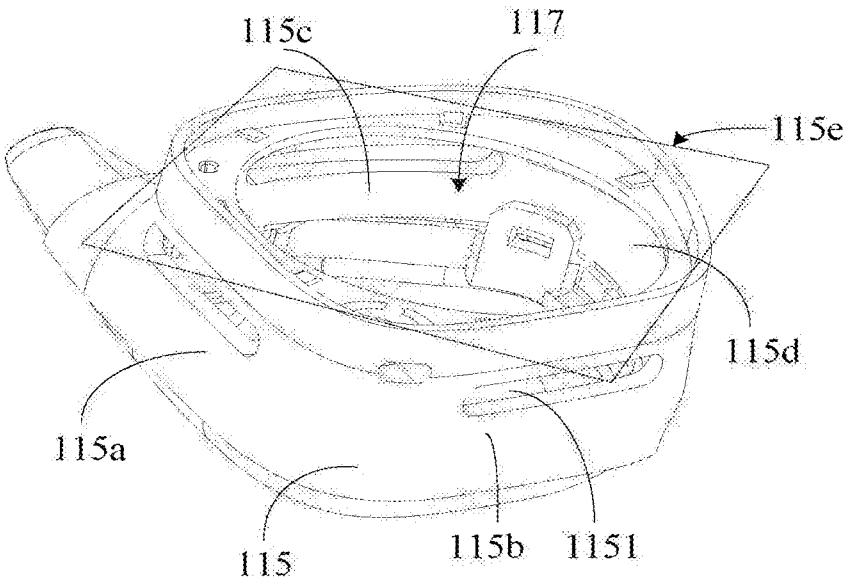


图8

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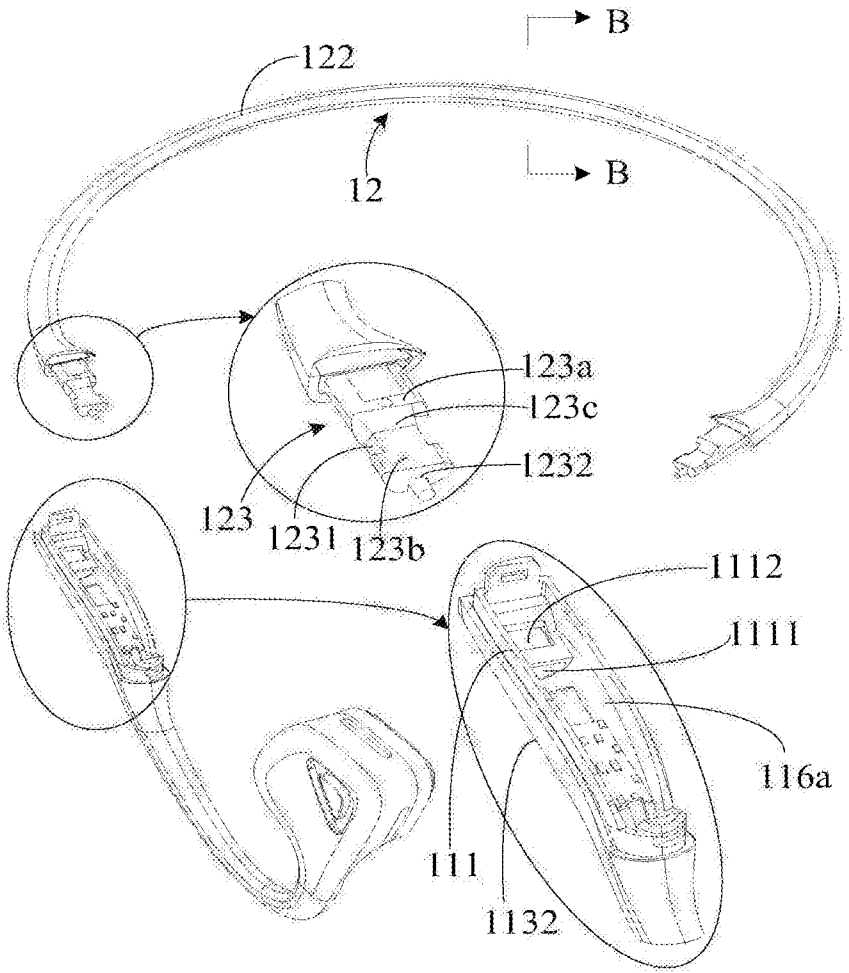


图9

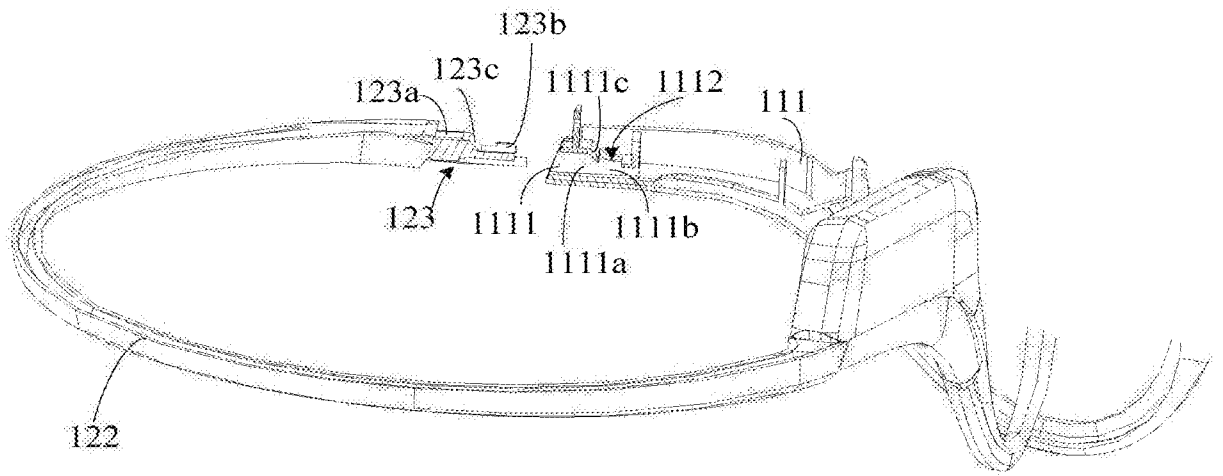


图10

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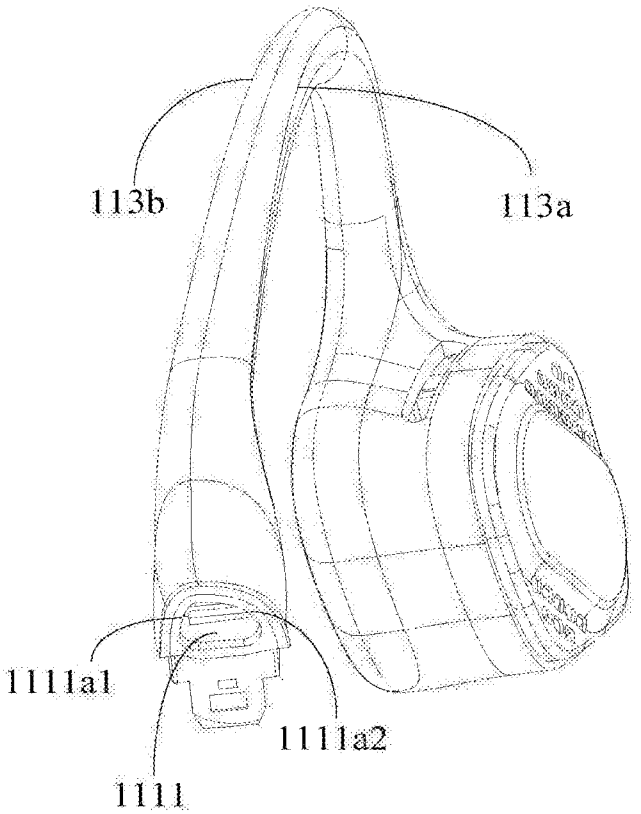


图11

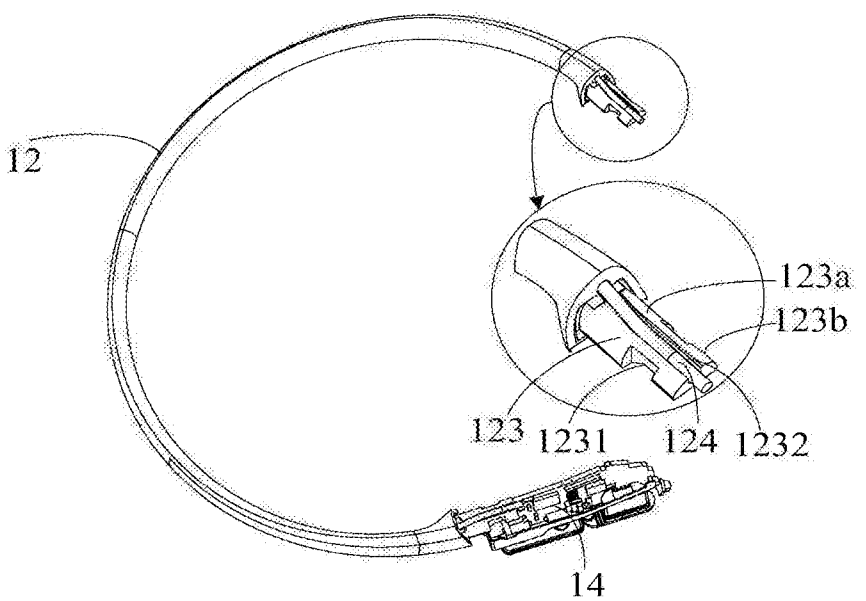


图12

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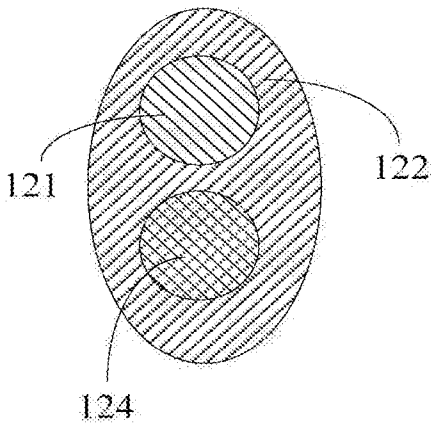


图13

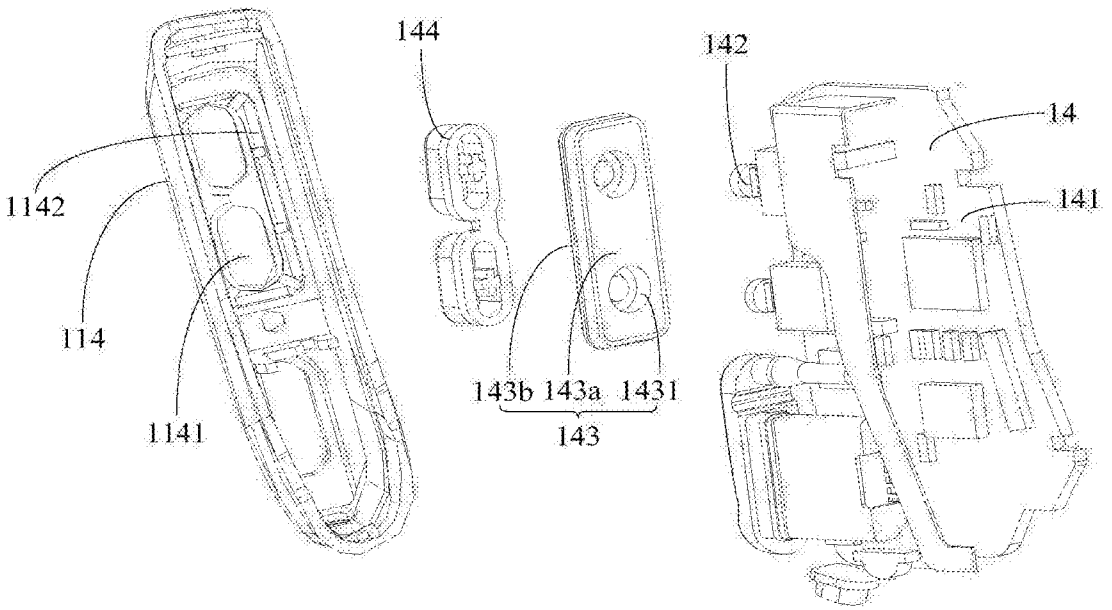


图14

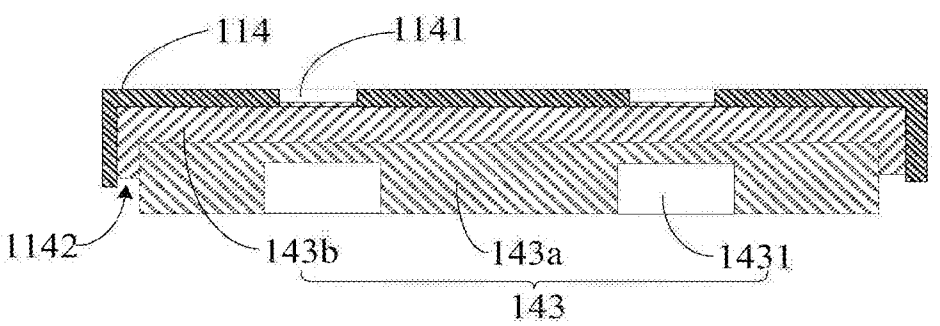


图15

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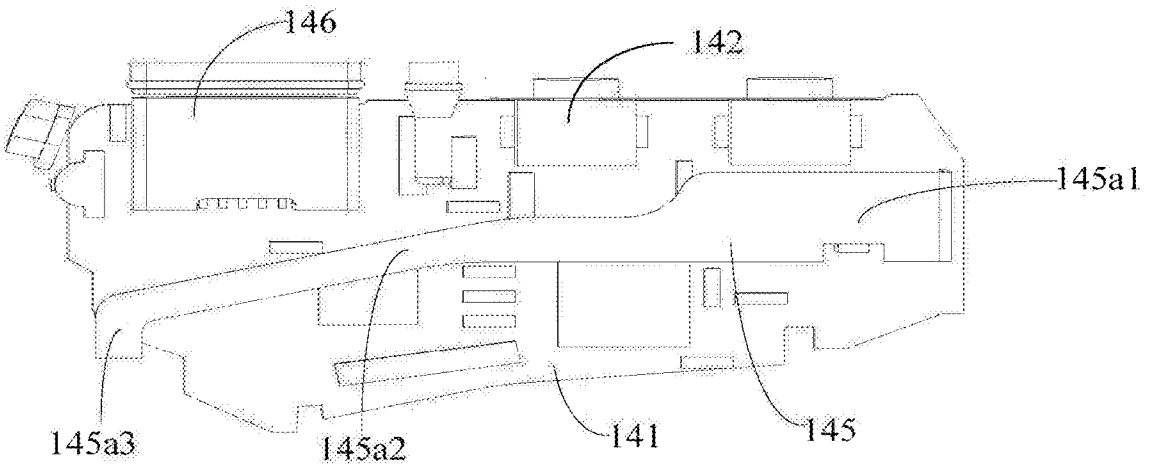


图16

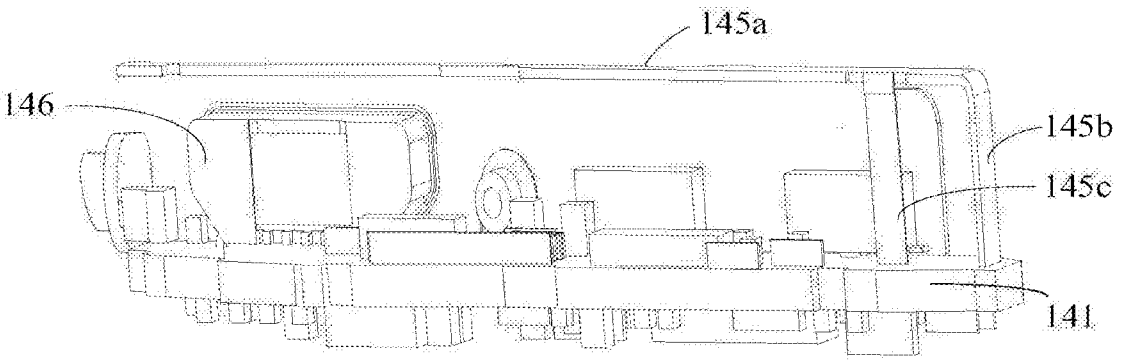


图17

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Protective device and hanging-on-neck type earphone

Abstract

The utility model belongs to ear speaker device technical field more particularly to a kind of protective device and hanging-on-neck type earphone.The protective device is for preventing the motor in earphone stuck; it is connected with vibrating mass on the output shaft of the motor; the protective device includes vibrationproof gum cover and protective shell; the vibrationproof gum cover is sheathed on the motor, the host cavity for accommodating the vibrating mass and the vibrationproof gum cover is equipped in the protective shell, the inner wall of the host cavity is equipped with the anti-jamming position of bone of the end face for abutting output shaft of the vibrationproof gum cover close to the motor.The protective device of the utility model have it is simple in structure, vibration proof and anti-seize effect are good, and reasonable design, service life is long, at low cost, cost-effective.

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China

Other languages: Chinese

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Worldwide applications

2017 **CN**

Application CN201721763815.0U events

2017-12-14	Application filed by 深圳市冠旭电子股份有限公司
2017-12-14	Priority to CN201721763815.0U
2018-08-28	Application granted
2018-08-28	Publication of CN207783068U

Info: Cited by (1), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

Protective device and hanging-on-neck type earphone

Technical field

The utility model belongs to ear speaker device technical field more particularly to a kind of protective device and hanging-on-neck type earphone.

Background technology

Currently, wireless device increasingly has been favored by people, especially wireless Bluetooth headsets, while wireless Bluetooth headsets Function it is also stronger and stronger.In routine use, it sometimes appear that the phenomenon that wireless headset falls off from ear, what is fallen off is wireless Earphone may fall to be damaged on the ground, and hanging-on-neck type earphone can solve the problems, such as to fall off.It is outstanding in the headset body of hanging-on-neck type earphone In the case of hanging neck but earplug not being filled in the ear of user, user can not receive the hand being connected with hanging-on-neck type earphone The equipment such as machine receive the sound prompting of information or

Claims (10)

Hide Dependent

1 a kind of protective device is connected with vibrating mass for preventing the motor in earphone stuck on the output shaft of the motor, special Sign is : The protective device includes vibrationproof gum cover and protective shell, and the vibrationproof gum cover is sheathed on the motor, the protection The host cavity for accommodating the vibrating mass and the vibrationproof gum cover is equipped in shell, the inner wall of the host cavity is equipped with for abutting The anti-jamming position of bone of the end face of output shaft of the vibrationproof gum cover close to the motor.

2. protective device according to claim 1, it is characterised in that : The vibrationproof gum cover is vibrationproof silica gel sheath.

3. protective device according to claim 1, it is characterised in that : The protective shell is hard protective shell.

phone, it is possible to which because the prompt of earphone is not in time, and it is important to miss some Information.In order to solve the problems, such as information reminding not in time, most hanging-on-neck type earphone can be equipped with motor inside headset body And vibrating mass.When the equipment such as mobile phone receive information etc., motor drives vibrating mass vibration, the vibration of vibrating mass to pass through headset body The neck for passing to user, to play the role of prompting user, and the mode of this vibration will not be due to ambient sound be noisy Miss important information.

But motor and vibrating mass are placed in headset body simultaneously, and the vibration of vibrating mass can also cause the vibration of motor, cause The position of motor shifts, so that vibrating mass or output shaft generate interference with other component, causes motor stuck.Together When headset body generally use silica gel material, headset body have good deformability, this be conducive to wear and extract earphone Ontology, but the deformation of headset body also can cause motor and vibrating mass to be subjected to displacement, it is stuck so as to cause motor.

Utility model content

The purpose of this utility model is to provide a kind of protective device and hanging-on-neck type earphones, it is intended to solve in the prior art The vibration of motor and stuck technical problem.

To achieve the above object, the technical solution adopted in the utility model is：A kind of protective device, for preventing in earphone Motor it is stuck, be connected with vibrating mass on the output shaft of the motor, the protective device includes vibrationproof gum cover and protective shell, described Vibrationproof gum cover is sheathed on the motor, and the receipts for accommodating the vibrating mass and the vibrationproof gum cover are equipped in the protective shell The inner wall of vessel, the host cavity is equipped with the anti-sticking of the end face for abutting output shaft of the vibrationproof gum cover close to the motor Sequestrum position.

Further, the vibrationproof gum cover is vibrationproof silica gel sheath.

Further, the protective shell is hard protective shell.

Further, the vibrationproof gum cover offers the through-hole that the output shaft for the motor is worn, the through-hole it is straight Diameter is less than the diameter of the shell of the motor.

Further, the protective shell offers on the end face of the power connection end of the motor wears for the power connection end Notch.

4. protective device according to claim 1, it is characterised in that：The vibrationproof gum cover is offered for the defeated of the motor The through-hole that shaft is worn, the diameter of the through-hole are less than the diameter of the shell of the motor.

5. protective device according to claim 4, it is characterised in that：Power connection end of the protective shell close to the motor The notch worn for the power connection end is offered on end face.

6. protective device according to claim 1, it is characterised in that：The inner wall of the protective shell be equipped with semicircle cambered surface and with The tangent plane in the end of the semicircle cambered surface, the semicircle cambered surface and the outer wall of the vibrationproof gum cover abut against.

7. protective device according to claim 6, it is characterised in that：The outer wall of the vibrationproof gum cover is equipped with towards described flat The boss that the direction in face extends and abutted against with the plane.

8. protective device according to claim 7, it is characterised in that：The boss is located at the length side of the vibrationproof gum cover To both ends between.

9. according to claim 1~8 any one of them protective device, it is characterised in that：The outer wall of the protective shell is equipped with Convenient for the fixed ear of the fixation protective shell.

10. a kind of hanging-on-neck type earphone, including headset body, the motor for being fixed on headset body, it is characterised in that：Further include such as power Profit requires 1~9 any one of them protective device, the motor to be set in the protective device.

Further, the inner wall of the protective shell be equipped with semicircle cambered surface and with tangent flat in the end of the semicircle cambered surface Face, the semicircle cambered surface and the outer wall of the vibration gum cover abut against.

Further, the outer wall of the vibrationproof gum cover, which is equipped with, extends towards the direction of the plane and offsets with the plane The boss connect.

Further, the boss is located between the both ends of the length direction of the vibrationproof gum cover.

Further, the outer wall of the protective case is equipped with convenient for the fixed ear of the fixed protective case.

The beneficial effects of the utility model : The protective device of the utility model, vibrationproof gum cover are sheathed on motor, work as vibration When block causes headset body to be vibrated, the vibration that the vibration of headset body passes to motor can be absorbed by vibrationproof gum cover, to Motor will not be caused to vibrate.Vibrationproof gum cover and vibrating mass are all located in the host cavity of protective case, when headset body is because wearing With take be deformed when, protective case protects vibrationproof gum cover and vibrating mass not to be deformed, while being set in the host cavity of protective case There is position of bone mechanism, the axial displacement for limiting vibrationproof gum cover and motor, to ensure that the position of motor and vibrating mass will not It changes.The protective device of the utility model, vibration proof and anti-seize effect are good, and simple in structure, and reasonable design uses the longevity Life length, it is at low cost, it is cost-effective.

The utility model use another technical solution be : A kind of hanging-on-neck type earphone, including above-mentioned protective device.

The hanging-on-neck type earphone of the utility model, due to the use of above-mentioned protective device so that the motor in hanging-on-neck type earphone It will not cause the stuck of motor because of the vibration of itself of motor, the movement of motor and vibrating mass not occur yet, cause to vibrate mould Block failure, so that earphone failure, the service life of shortening earphone, above-mentioned protective device structure is simple, can be easily mounted to in the hanging-on-neck type earphone of the utility model, the cost of hanging-on-neck type earphone will not be increased, improve cost performance.

Description of the drawings

It, below will be to embodiment or the prior art in order to illustrate more clearly of the technical scheme in the embodiment of the utility model Attached drawing needed in description is briefly described, it should be apparent that, the accompanying drawings in the following description is only that this practicality is new Some

embodiments of type for those of ordinary skill in the art without having to pay creative labor, can be with Obtain other attached drawings according to these attached drawings.

Fig. 1 is the structural schematic diagram for the protective device that the utility model embodiment provides.

Fig. 2 is the structural schematic diagram for the hanging-on-neck type earphone that the utility model embodiment provides.

Fig. 3 is the partial structurtes enlarged drawing at A in Fig. 2.

Fig. 4 is the explosive view for the protective device that the utility model embodiment provides.

Wherein, each reference numeral in figure :

10-headset body 20-protective device, 21-motors

210-power connection end 22-vibrating mass, 23-vibrationproof gum covers

230-the first abutting part 231-boss, 24-protective sheil

240-host cavities 241-anti-jamming 242-notch of the position of bone

243-the second abutting part 245-aemicircle, 246-plane of cambered surface

247-fixed ears.

Specific implementation mode

The embodiments of the present invention are described below in detail, examples of the embodiments are shown in the accompanying drawings, wherein from beginning Same or similar element or element with the same or similar functions are indicated to aame or similar label eventually.Below by ginseng The embodiment for examining the description of attached drawing 1~4 is exemplary, it is intended to for explaining the utility model, and should not be understood as to this practicality Novel limitation.

In the description of the present invention, it should be understood that term " length ", " width ", "upper", "lower", " preceding ", The orientation or positional relationship of the instructions such as " rear ", "left", "right", "vertical", "horizontal", "top", "bottom" "inner", "outside" is based on attached Orientation or positional relationship shown in figure, is merely for convenience of describing the present invention and simplifying the description, rather than indicates or imply Signified device or element must have a particular orientation, with specific azimuth configuration and operation, therefore should not be understood as to this The limitation of utility model.

In addition, term " first ", " second " are used for description purposes only, it is not understood to indicate or imply

relative importance Or implicitly indicate the quantity of indicated technical characteristic.Define " first " as a result, the feature of " second " can be expressed or Implicitly include one or more this feature.The meaning of " plurality " is two or two in the description of the present invention, More than, unless otherwise specifically defined.

In the present invention unless specifically defined or limited otherwise, term " installation ", " connected ", " connection ", " Gu It is fixed " etc. terms shall be understood in a broad sense, for example, it may be being fixedly connected, may be a detachable connection, or integral ; Can be Mechanical connection can also be electrical connection ; It can be directly connected, can also can be indirectly connected through an intermediary two The interaction relationship of connection or two elements inside element.It for the ordinary skill in the art, can basis Concrete condition understands the concrete meaning of above-mentioned term in the present invention.

As shown in figures 1-4, the utility model embodiment provides a kind of protective device, for preventing the motor in earphone 21 is stuck, and vibrating mass 22 is connected on the output shaft of the motor 21, and the protective device 20 includes vibrationproof gum cover 23 and protective shell 24, the vibrationproof gum cover 23 is sheathed on the motor 21, is equipped in the protective shell 24 for accommodating 22 He of the vibrating mass The inner wall of the host cavity 240 of the vibrationproof gum cover 23, the host cavity 240 is equipped with for abutting the vibrationproof gum cover 23 close to institute State the anti-jamming position of bone 241 of the end face of the output shaft of motor 21.Specifically, the protective device 20 of the utility model, vibrationproof gum cover 23 are sheathed on motor 21, and when vibrating mass 22 causes headset body 10 to be vibrated, the vibration of headset body 10 passes to horse Vibration up to 21 can be absorbed by vibrationproof gum cover 23, to which motor 21 will not be caused to vibrate.Vibrationproof gum cover 23 and vibrating mass 22 It is all located in the host cavity 240 of protective case, when headset body 10 is deformed because wearing and taking, protective case protects anti-vibration rubber Set 23 and vibrating mass 22 are not deformed, while position of bone mechanism is equipped in the host cavity 240 of protective case, for limiting vibrationproof gum cover 23 and motor 21 axial displacement, to ensure that motor 21 and the position of vibrating mass 22 will not change.

The protective device of the utility model embodiment, has the advantages that simple in structure, and vibration proof and anti-seize effect are good, Reasonable design, service life is long, at low cost, cost-effective.

In the present embodiment, as shown in fig.3, the vibrationproof gum cover 23 is vibrationproof silica gel sheath.Specifically, vibrationproof gum cover 23 is excellent It is first made of silica gel, since silica gel has the performance of good absorption vibration, and silica gel

is unlikely to deform, then when in use, preventing The silica gel sheath that shakes can absorb the vibration that part headset body 10 transmits motor 21, lead to horse to avoid the vibration because of motor 21 Operation up to 21 is unstable, and then leads to that motor 21 shifts and occur there is a phenomenon where stuck.

In the present embodiment, as shown in fig.3, the protective shell 24 is hard protective shell.Specifically, protective shell 24 can be adopted It is made of rigid plastics, rigid plastics has on-deformable characteristic, due to when wearing and winning earphone, 10 meeting of headset body It deforms, then when protective shell 24 uses rigid plastics, the deformation of headset body 10 then not to lead to the deformation of protective shell 24, To ensure that motor 21 and the position of vibrating mass 22 are relatively fixed, and motor 21 and vibrating mass 22 will not be made by deformation force With so that the operating of motor 21 and vibrating mass 22 is more stable.

In the present embodiment, as shown in fig.1, the vibrationproof gum cover 23 is offered and is worn for the output shaft of the motor 21 Through-hole (not shown), the diameter of the through-hole are less than the diameter of 21 ontology of the motor.Specifically, the diameter of through-hole is less than motor 21 body dimension, the outer wall of vibrationproof gum cover 23 form the first abutting part 230 with close to the end face of 21 output shaft of motor, and first supports Socket part 230 is axially moved for limiting motor 21 in vibrationproof gum cover 23.

In the present embodiment, as shown in fig.1, the protective shell 24 is on the end face of the power connection end 210 of the motor 21 Offer the notch 242 worn for the power connection end 210.Specifically, the power connection end 210 of motor 21 and the circuit phase inside earphone Even, to control the start and stop of motor 21.Notch 242 is easy to the power connection end 210 of circuit and motor 21 on the end face of protective shell 24 Connection, protective case is additionally provided with the second abutting part 243 for abutting 21 end face of motor on the end of notch 242, and anti-sticking Sequestrum position 241 is connected to the vibrationproof gum cover 23 being sheathed on motor 21 on the end face of 21 output shaft of motor, to limit The axial displacement of motor 21 and vibrationproof gum cover 23 realizes the axially position of motor 21 and vibrationproof gum cover 23.

In the present embodiment, as shown in fig.4, the inner wall of the protective shell 24 be equipped with semicircle cambered surface 245 and with the semicircle The outer wall of the tangent plane 246 in the end of cambered surface 245, the semicircle cambered surface 245 and the vibration gum cover abuts against.Specifically, Semicircle cambered surface and the outer wall of vibrationproof gum cover 23 on the inner wall of the protective shell 24 abut against, and limit vibrationproof gum cover 23 and are protecting Shaking in protective case 24 positions motor 21

and vibrationproof gum cover 23.Protective shell 24 is additionally provided with tangent with semicircle cambered surface 245 Plane 246, being provided with for the structure are installed on conducive to motor 21 and vibrationproof gum cover 23 in protective shell 24.

In the present embodiment, prolong towards 246 direction of the plane as shown in fig.4, the outer wall of the vibrationproof gum cover 23 is equipped with The boss 231 stretched and abutted against with the plane 246.Specifically, boss 231 and the plane 246 of protective shell 24 abut against, favorably In making vibrationproof gum cover 23 not carry out radial rotating in the protective shell 24 effect of earthen platform abutted against by plane 246, Limit the radial rotating of vibrationproof gum cover 23.

In the present embodiment, as shown in fig.1, length of the boss 231 along the direction of 21 output shaft of the motor is less than The length of the vibrationproof gum cover 23.Specifically, installation and the institute of this kind of structure being provided with conducive to motor 21 and vibrationproof gum cover 23 In the installation cavity for stating protective case, and in axial direction, there is gaps between vibrationproof gum cover 23 and protective case, reduce and contact between the two Area can subtract at least part of vibration and transmit, meanwhile, for vibrationproof gum cover 23 when absorbing vibration, there are certain for vibration gum cover Vibration gap, rather than the own absorption of material one's very own, back towards outer transmission partial vibration energy, can increase anti-vibration rubber The service life of set 23, and it is good to obtain vibration-isolating effect.

In the present embodiment, as shown in fig.4, the outer wall of the protective case is equipped with the fixation for fixing the protective case Ear 247.Specifically, fixed ear 247 is mainly used for protective case being fixed in the inside of headset body 10, and protective case is fixed on ear In a manner of mode on machine ontology 10 can be connected by screw, be bolted, be bonded etc..It can also be by the inside of headset body 10 Inner wall identical with 24 shape of protective shell is offered to be abutted protective shell 24 is fixed.

Further, protective shell 24 is being equipped with the card for being clamped with 10 phase of headset body on the end face of vibrating mass 22 Socket part (not shown).

A kind of hanging-on-neck type earphone, including above-mentioned protective device 20 are additionally provided in the utility model embodiment.

Hanging-on-neck type earphone in the utility model embodiment, as shown in fig.2, due to the use of above-mentioned protective device 20, So that the motor 21 in hanging-on-neck type earphone will not cause the stuck of motor 21 because of the vibration of itself of motor 21, horse does not also occur Up to 21 and the movement of vibrating mass 22, lead to vibration module failure, so that

earphone failure, the service life of shortening earphone, on The protective device 20 stated is simple in structure, can be easily mounted in the hanging-on-neck type earphone of the utility model, will not increase hanging-on-neck type ear The cost of machine improves cost performance.

The above is only the preferred embodiment of the utility model only, is not intended to limit the utility model, all at this All any modification, equivalent and improvement etc., should be included in the utility model made by within the spirit and principle of utility model Protection domain within.

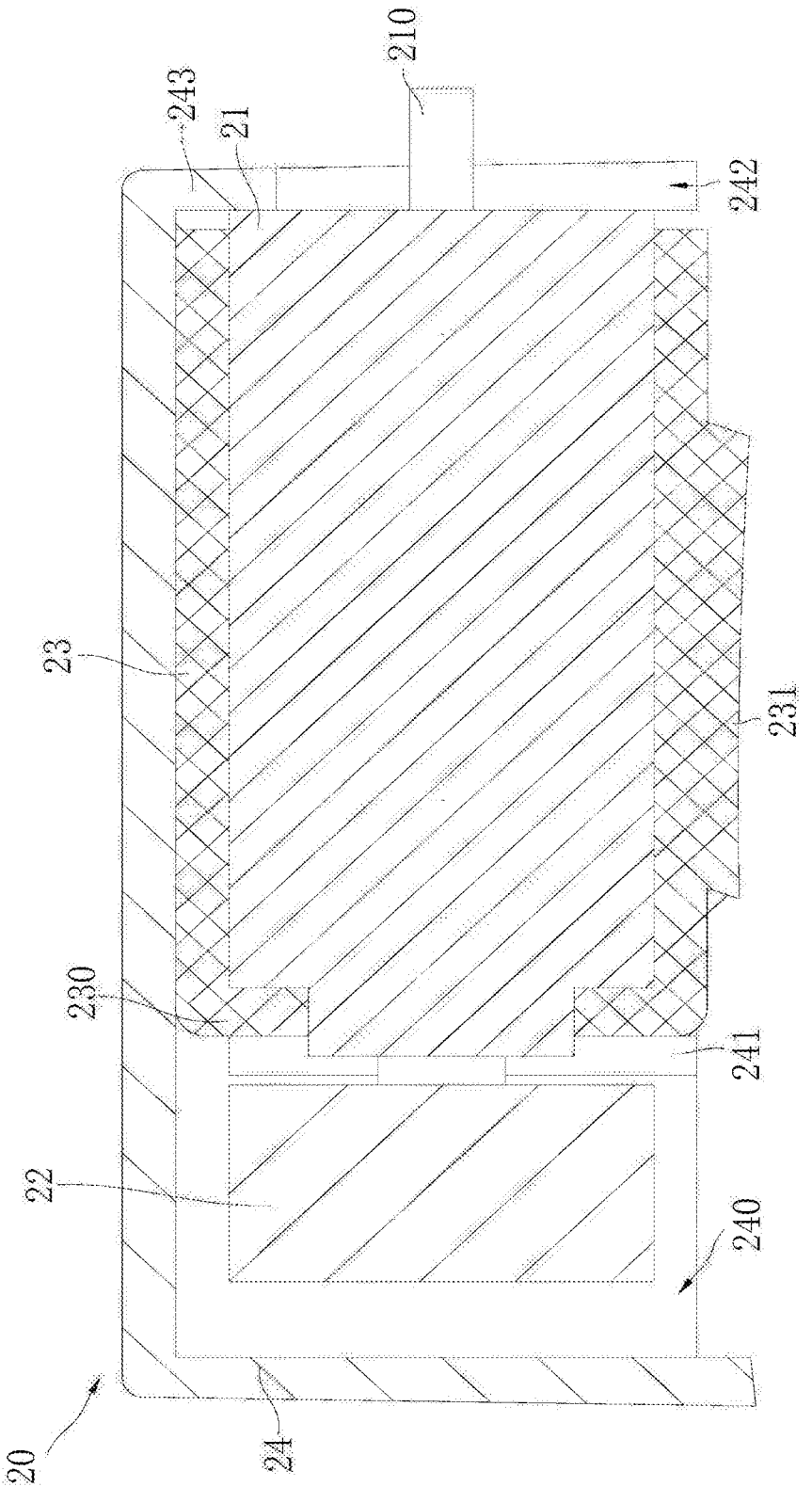


图1

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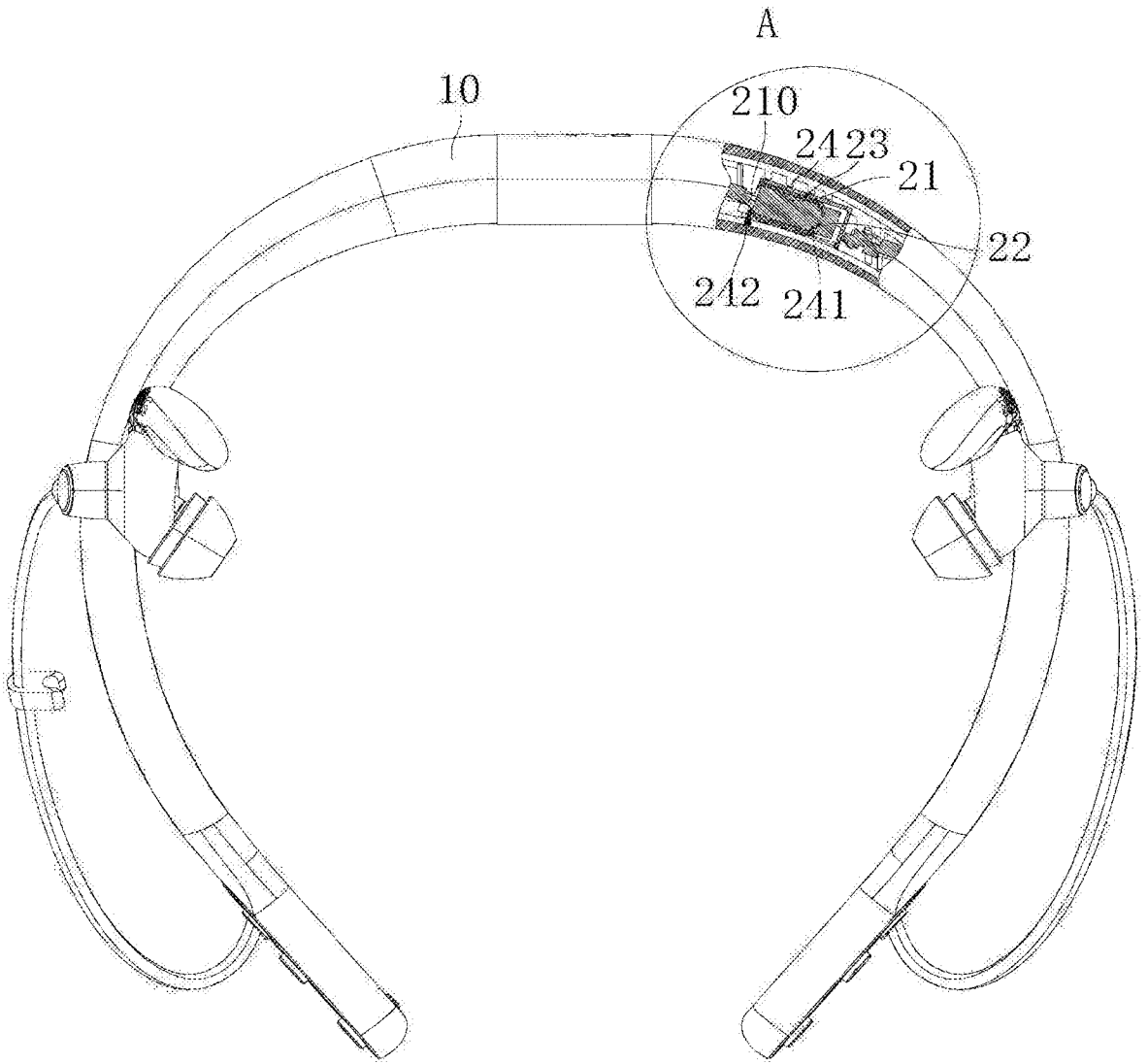


图2

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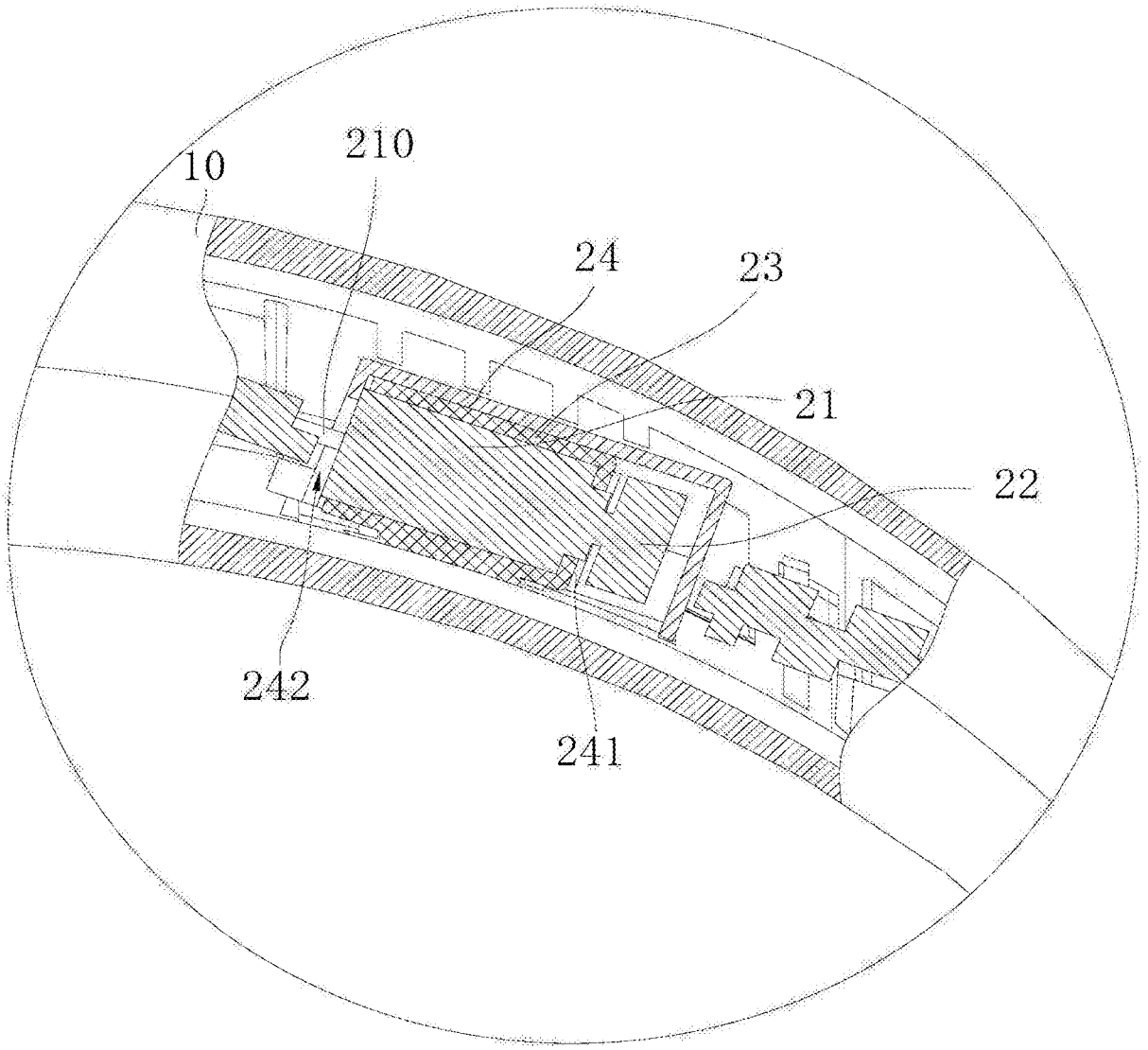


图3

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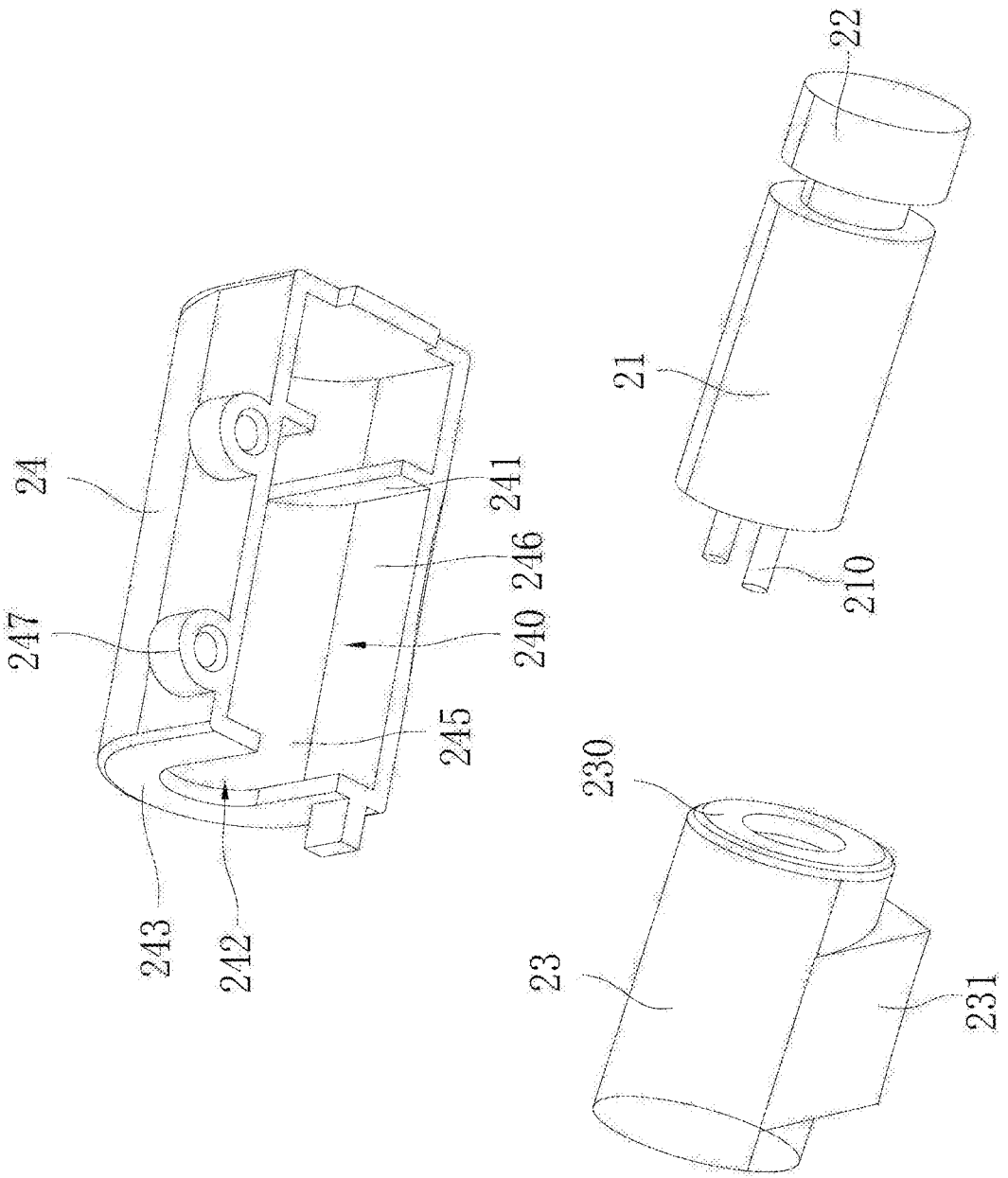


图4

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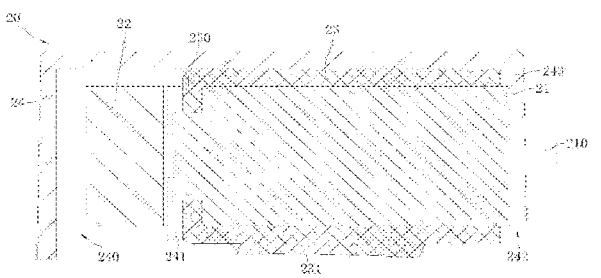
权利要求书1页 说明书4页 附图4页

(54)实用新型名称

防护装置及挂脖式耳机

(57)摘要

本实用新型属于耳机设备技术领域，尤其涉及一种防护装置及挂脖式耳机。所述防护装置用于防止耳机中的马达卡死，所述马达的输出轴上连有振动块，所述防护装置包括防振胶套和保护壳，所述防振胶套套设于所述马达上，所述保护壳内设有用于容纳所述振动块和所述防振胶套的收容腔，所述收容腔的内壁设有用于抵接所述防振胶套靠近所述马达的输出轴的端面的防卡死骨位。本实用新型的防护装置具有结构简单，防振动和防卡死效果好，设计合理，使用寿命长，成本低，性价比高。



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1.一种防护装置，用于防止耳机中的马达卡死，所述马达的输出轴上连有振动块，其特征在于：所述防护装置包括防振胶套和保护壳，所述防振胶套套设于所述马达上，所述保护壳内设有用于容纳所述振动块和所述防振胶套的收容腔，所述收容腔的内壁设有用于抵接所述防振胶套靠近所述马达的输出轴的端面的防卡死骨位。

2.根据权利要求1所述的防护装置，其特征在于：所述防振胶套为防振硅胶套。

3.根据权利要求1所述的防护装置，其特征在于：所述保护壳为硬质保护壳。

4.根据权利要求1所述的防护装置，其特征在于：所述防振胶套开设有供所述马达的输出轴穿设的通孔，所述通孔的直径小于所述马达的外壳的直径。

5.根据权利要求4所述的防护装置，其特征在于：所述保护壳靠近所述马达的接电端的端面上开设有供所述接电端穿设的缺口。

6.根据权利要求1所述的防护装置，其特征在于：所述保护壳的内壁设有半圆弧面和与所述半圆弧面的端部相切的平面，所述半圆弧面与所述防振胶套的外壁相抵接。

7.根据权利要求6所述的防护装置，其特征在于：所述防振胶套的外壁上设有朝所述平面的方向延伸且与所述平面相抵接的凸台。

8.根据权利要求7所述的防护装置，其特征在于：所述凸台位于所述防振胶套的长度方向的两端之间。

9.根据权利要求1～8任一项所述的防护装置，其特征在于：所述保护壳的外壁上设有便于固定所述保护壳的固定耳。

10.一种挂脖式耳机，包括耳机本体、固定于耳机本体的马达，其特征在于：还包括如权利要求1～9任一项所述的防护装置，所述马达设置于所述防护装置内。

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防护装置及挂脖式耳机

技术领域

[0001] 本实用新型属于耳机设备技术领域，尤其涉及一种防护装置及挂脖式耳机。

背景技术

[0002] 目前，无线设备越来越受到人们的青睐，特别是无线蓝牙耳机，同时无线蓝牙耳机的功能也越来越强大。在日常使用时，有时会出现无线耳机从耳朵脱落的现象，脱落的无线耳机可能会掉在地上被损坏，挂脖式耳机能解决脱落的问题。在挂脖式耳机的耳机本体悬挂着颈部但是没有将耳塞塞入用户的耳朵的情况下，用户会收不到与挂脖式耳机相连的手机等设备收到信息或电话的声音提醒，有可能因为耳机的提示不及时，而错过一些重要的信息。为了解决信息提醒不及时的问题，大部分的挂脖式耳机会在耳机本体里面设有马达和振动块。当手机等设备收到信息等时，马达带动振动块振动，振动块的振动通过耳机本体传递给用户的颈部，从而起到提示用户的作用，且这种振动的方式不会因环境声音嘈杂而错过重要的信息。

[0003] 但马达和振动块同时置于耳机本体中，振动块的振动也会引起马达的振动，导致马达的位置发生偏移，从而使得振动块或者输出轴与其他部件产生干涉，导致马达卡死。同时耳机本体一般采用硅胶材质，耳机本体具有良好的变形能力，这有利于佩戴和摘除耳机本体，但耳机本体的变形也会引起马达和振动块发生位移，从而导致马达卡死。

实用新型内容

[0004] 本实用新型的目的在于提供一种防护装置及挂脖式耳机，旨在解决现有技术中的马达的振动和卡死的技术问题。

[0005] 为实现上述目的，本实用新型采用的技术方案是：一种防护装置，用于防止耳机中的马达卡死，所述马达的输出轴上连有振动块，所述防护装置包括防振胶套和保护壳，所述防振胶套套设于所述马达上，所述保护壳内设有用于容纳所述振动块和所述防振胶套的收容腔，所述收容腔的内壁设有用于抵接所述防振胶套靠近所述马达的输出轴的端面的防卡死骨位。

[0006] 进一步地，所述防振胶套为防振硅胶套。

[0007] 进一步地，所述保护壳为硬质保护壳。

[0008] 进一步地，所述防振胶套开设有供所述马达的输出轴穿设的通孔，所述通孔的直径小于所述马达的外壳的直径。

[0009] 进一步地，所述保护壳靠近所述马达的接电端的端面上开设有供所述接电端穿设的缺口。

[0010] 进一步地，所述保护壳的内壁设有半圆弧面和与所述半圆弧面的端部相切的平面，所述半圆弧面与所述振动胶套的外壁相抵接。

[0011] 进一步地，所述防振胶套的外壁上设有朝所述平面的方向延伸且与所述平面相抵接的凸台。

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[0012] 进一步地，所述凸台位于所述防振胶套的长度方向的两端之间。

[0013] 进一步地，所述保护套的外壁上设有便于固定所述保护套的固定耳。

[0014] 本实用新型的有益效果：本实用新型的防护装置，防振胶套套设于马达上，当振动块引起耳机本体发生振动时，耳机本体的振动传递给马达的振动会被防振胶套吸收，从而不会引起马达发生振动。防振胶套和振动块都位于保护套的收容腔中，当耳机本体因佩戴和摘下产生变形时，保护套保护防振胶套和振动块不产生变形，同时保护套的收容腔中设有骨位机构，用于限制防振胶套和马达的轴向位移，从而保证了马达与振动块的位置不会发生变化。本实用新型的防护装置，防振动和防卡死效果好，且结构简单，设计合理，使用寿命长，成本低，性价比高。

[0015] 本实用新型采用的另一技术方案是：一种挂脖式耳机，包括上述的防护装置。

[0016] 本实用新型的挂脖式耳机，由于使用上述的防护装置，使得挂脖式耳机中的马达不会因马达的自身的振动而引起马达的卡死，也不发生马达和振动块的移动，导致振动模块故障，从而使得耳机故障，缩短耳机的使用寿命，上述的防护装置结构简单，易于安装于本实用新型的挂脖式耳机中，也不会增加挂脖式耳机的成本，提高性价比。

附图说明

[0017] 为了更清楚地说明本实用新型实施例中的技术方案，下面将对实施例或现有技术描述中所需要使用的附图作简单地介绍，显而易见地，下面描述中的附图仅仅是本实用新型的一些实施例，对于本领域普通技术人员来讲，在不付出创造性劳动性的前提下，还可以根据这些附图获得其他的附图。

[0018] 图1为本实用新型实施例提供的防护装置的结构示意图。

[0019] 图2为本实用新型实施例提供的挂脖式耳机的结构示意图。

[0020] 图3为图2中A处的局部结构放大图。

[0021] 图4为本实用新型实施例提供的防护装置的爆炸图。

[0022] 其中，图中各附图标记：

[0023] 10—耳机本体 20—防护装置 21—马达

[0024] 210—接电端 22—振动块 23—防振胶套

[0025] 230—第一抵接部 231—凸台 24—保护壳

[0026] 240—收容腔 241—防卡死骨位 242—缺口

[0027] 243—第二抵接部 245—半圆弧面 246—平面

[0028] 247—固定耳。

具体实施方式

[0029] 下面详细描述本实用新型的实施例，所述实施例的示例在附图中示出，其中自始至终相同或类似的标号表示相同或类似的元件或具有相同或类似功能的元件。下面通过参考附图1～4描述的实施例是示例性的，旨在用于解释本实用新型，而不能理解为对本实用新型的限制。

[0030] 在本实用新型的描述中，需要理解的是，术语“长度”、“宽度”、“上”、“下”、“前”、“后”、“左”、“右”、“竖直”、“水平”、“顶”、“底”“内”、“外”等指示的方位或位置关系为基于附

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图所示的方位或位置关系，仅是为了便于描述本实用新型和简化描述，而不是指示或暗示所指的装置或元件必须具有特定的方位、以特定的方位构造和操作，因此不能理解为对本实用新型的限制。

[0031] 此外，术语“第一”、“第二”仅用于描述目的，而不能理解为指示或暗示相对重要性或者隐含指明所指示的技术特征的数量。由此，限定有“第一”、“第二”的特征可以明示或者隐含地包括一个或者更多个该特征。在本实用新型的描述中，“多个”的含义是两个或两个以上，除非另有明确具体的限定。

[0032] 在本实用新型中，除非另有明确的规定和限定，术语“安装”、“相连”、“连接”、“固定”等术语应做广义理解，例如，可以是固定连接，也可以是可拆卸连接，或成一体；可以是机械连接，也可以是电连接；可以是直接相连，也可以通过中间媒介间接相连，可以是两个元件内部的连通或两个元件的相互作用关系。对于本领域的普通技术人员而言，可以根据具体情况理解上述术语在本实用新型中的具体含义。

[0033] 如图1～4所示，本实用新型实施例提供了一种防护装置，用于防止耳机中的马达21卡死，所述马达21的输出轴上连有振动块22，所述防护装置20包括防振胶套23和保护壳24，所述防振胶套23套设于所述马达21上，所述保护壳24内设有用于容纳所述振动块22和所述防振胶套23的收容腔240，所述收容腔240的内壁设有用于抵接所述防振胶套23靠近所述马达21的输出轴的端面的防卡死骨位241。具体地，本实用新型的防护装置20，防振胶套23套设于马达21上，当振动块22引起耳机本体10发生振动时，耳机本体10的振动传递给马达21的振动会被防振胶套23吸收，从而不会引起马达21发生振动。防振胶套23和振动块22都位于保护套的收容腔240中，当耳机本体10因佩戴和摘下产生变形时，保护套保护防振胶套23和振动块22不产生变形，同时保护套的收容腔240中设有骨位机构，用于限制防振胶套23和马达21的轴向位移，从而保证了马达21与振动块22的位置不会发生变化。

[0034] 本实用新型实施例的防护装置，具有结构简单的优点，且防振动和防卡死效果好，设计合理，使用寿命长，成本低，性价比高。

[0035] 本实施例中，参阅图3所示，所述防振胶套23为防振硅胶套。具体地，防振胶套23优先采用硅胶制成，由于硅胶具有良好吸收振动的性能，且硅胶不易变形，那么在使用时，防振硅胶套能吸收部分耳机本体10传递马达21的振动，从而避免因为马达21的振动而导致马达21的运行不平稳，进而导致马达21发生偏移而发生卡死的现象出现。

[0036] 本实施例中，参阅图3所示，所述保护壳24为硬质保护壳。具体地，保护壳24可以采用硬质塑料制成，硬质塑料具有不易变形的特性，由于在佩戴和摘取耳机时，耳机本体10会发生变形，那么当保护壳24采用硬质塑料，耳机本体10的变形则不会导致保护壳24的变形，从而保证了马达21与振动块22的位置相对固定，且马达21和振动块22不会受到变形力的作用，使得马达21和振动块22的运转更为稳定。

[0037] 本实施例中，参阅图1所示，所述防振胶套23开设有供所述马达21的输出轴穿设的通孔(图未示)，所述通孔的直径小于所述马达21本体的直径。具体地，通孔的直径小于马达21的本体尺寸，防振胶套23的外壁与靠近马达21输出轴的端面形成第一抵接部230，第一抵接部230用于限制马达21在防振胶套23内轴向运动。

[0038] 本实施例中，参阅图1所示，所述保护壳24靠近所述马达21的接电端210的端面上开设有供所述接电端210穿设的缺口242。具体地，马达21的接电端210与耳机内部的电路相

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连，从而控制马达21的启停。缺口242在保护壳24的端面上，易于电路与马达21的接电端210的连接，保护套在缺口242的端部上还设有用于抵接马达21端面的第二抵接部243，且防卡死骨位241抵接于套设于马达21上的防振胶套23靠近马达21输出轴的端面上，从而限制了马达21和防振胶套23的轴向位移，即实现了马达21和防振胶套23的轴向定位。

[0039] 本实施例中，参阅图4所示，所述保护壳24的内壁设有半圆弧面245和与所述半圆弧面245的端部相切的平面246，所述半圆弧面245与所述振动胶套的外壁相抵接。具体地，所述保护壳24的内壁上的半圆形弧面与防振胶套23的外壁相抵接，限制了防振胶套23在保护壳24内的晃动，对马达21和防振胶套23进行定位。保护壳24还设有与半圆弧面245相切的平面246，该结构的设置有利于马达21和防振胶套23安装于保护壳24中。

[0040] 本实施例中，参阅图4所示，所述防振胶套23的外壁上设有朝所述平面246方向延伸且与所述平面246相抵接的凸台231。具体地，凸台231与保护壳24的平面246相抵接，有利于通过平面246对土台的相抵接的作用使得防振胶套23不会在保护壳24内进行径向转动，限制了防振胶套23的径向转动。

[0041] 本实施例中，参阅图1所示，所述凸台231沿所述马达21输出轴的方向的长度小于所述防振胶套23的长度。具体地，该种结构的设置有利于马达21和防振胶套23的安装与所述保护套的安装腔中，且防振胶套23与保护套之间在轴向存在着间隙，减少了两者间接触面积，会减少一部分的振动传递，同时，防振胶套23在吸收振动时，振动胶套存在有一定的振动空隙，而不是完全靠自己材料的自身吸收，回向外传递部分振动能量，能够增加防振胶套23的使用寿命，且得到防振效果好。

[0042] 本实施例中，参阅图4所示，所述保护套的外壁上设有用于固定所述保护套的固定耳247。具体地，固定耳247主要用于将保护套固定于耳机本体10的内部中，保护套固定于耳机本体10上的方式可以螺钉连接、螺栓连接、粘接等方式。还可以通过在耳机本体10的内部开设有与保护壳24外形相同的内壁进行抵接来进行对保护壳24进行固定。

[0043] 进一步地，保护壳24在靠近振动块22的端面上设有用于与耳机本体10相卡接的卡接部(图未示)。

[0044] 本实用新型实施例中还提供了一种挂脖式耳机，包括上述的防护装置20。

[0045] 本实用新型实施例中的挂脖式耳机，参阅图2所示，由于使用上述的防护装置20，使得挂脖式耳机中的马达21不会因马达21的自身的振动而引起马达21的卡死，也不发生马达21和振动块22的移动，导致振动模块故障，从而使得耳机故障，缩短耳机的使用寿命，上述的防护装置20结构简单，易于安装于本实用新型的挂脖式耳机中，也不会增加挂脖式耳机的成本，提高性价比。

[0046] 以上所述仅为本实用新型的较佳实施例而已，并不用以限制本实用新型，凡在本实用新型的精神和原则之内所作的任何修改、等同替换和改进等，均应包含在本实用新型的保护范围之内。

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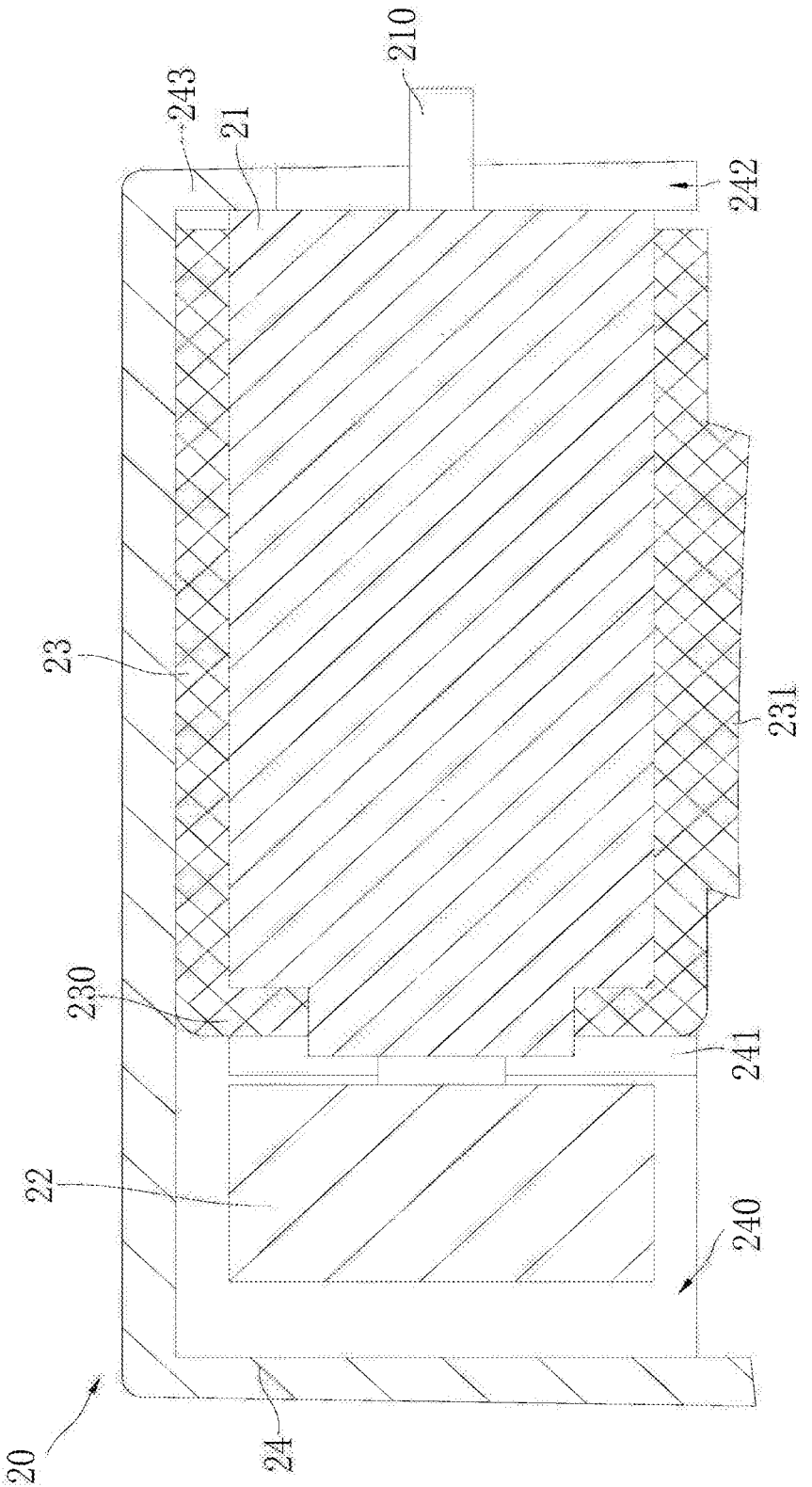


图1

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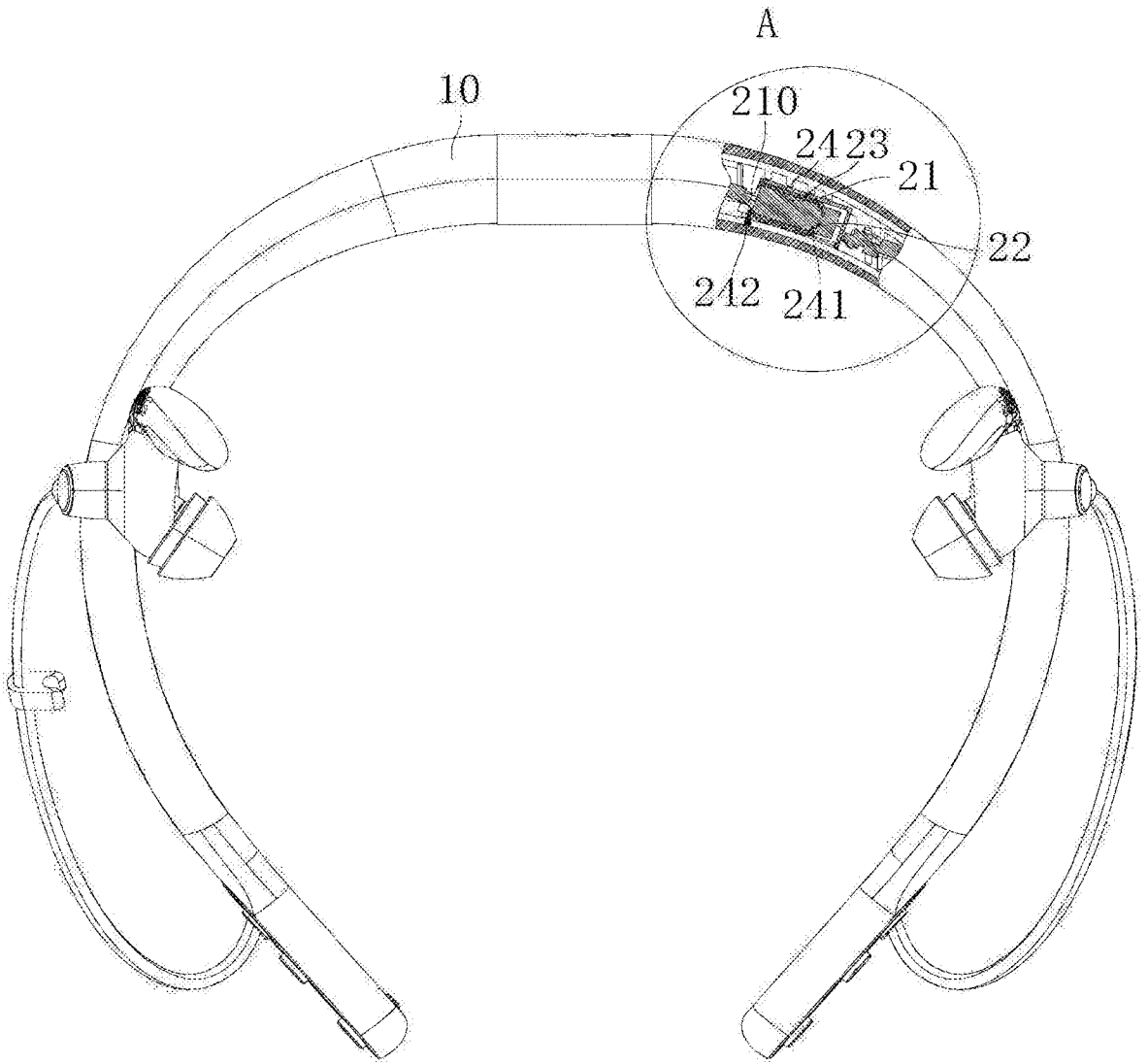


图2

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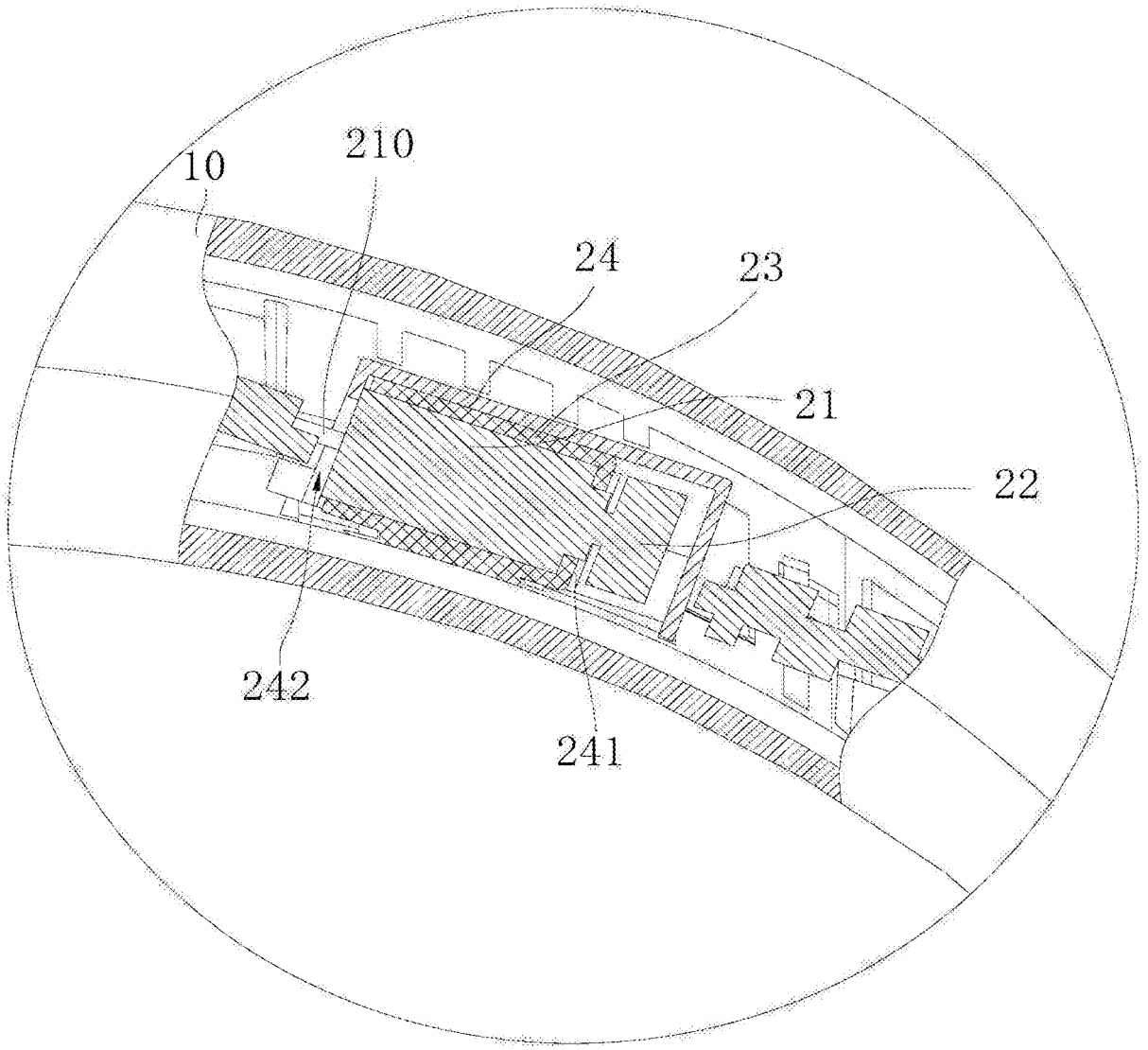


图3

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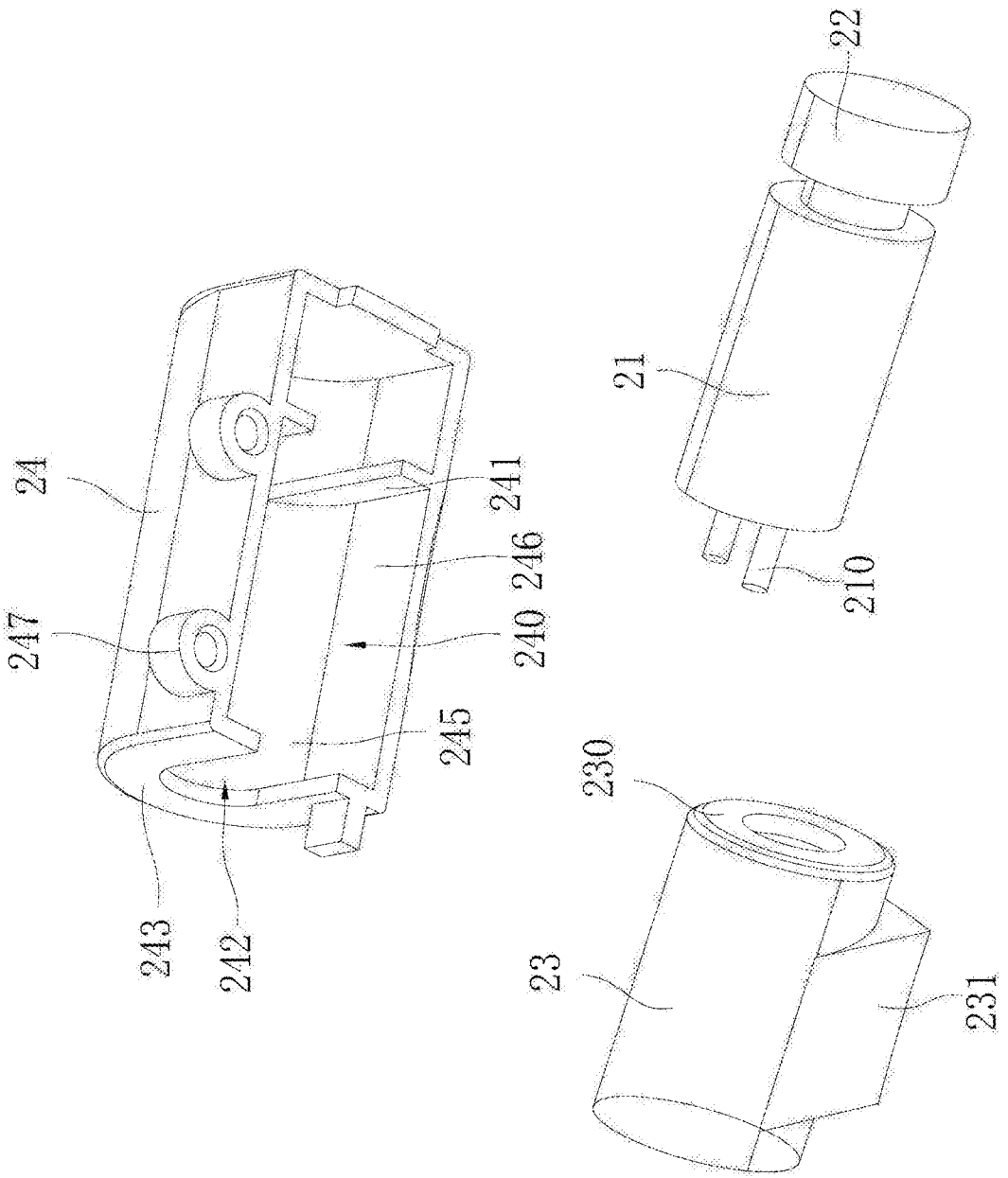


图4

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Osteoacusis loudspeaker arrangement

Abstract

This application discloses a kind of osteoacusis loudspeaker arrangements, comprising: ear-hang and circuit shell ; The circuit shell is connect for accommodating control circuit or battery with ear-hang ; Shell sheath is wherein molded on ear-hang, shell sheath is coated on the periphery of circuit shell in a manner of being set with.By the above-mentioned means, the application can reduce formative stage to control circuit or battery adverse effect.

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Worldwide applications

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Info: Cited by (2), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

Osteoacusis loudspeaker arrangement

Technical field

This application involves bone conduction technology fields, more particularly to a kind of osteoacusis loudspeaker arrangement.

Background technique

Osteoacusis is a kind of sound conduction mode, and osteoacusis loudspeaker arrangement receives sound using bone conduction technology, due to it Ears can be opened, do not injure the advantages that eardrum and the favor by the majority of consumers.

Osteoacusis loudspeaker arrangement is in formative stage, for accommodating the circuit shell of control circuit or battery and being arranged in circuit The protection sleeve pipe of closure periphery can be integrally formed.However, since circuit shell inner containment has control circuit or battery, if by two Person is integrally formed, then hot environment is easy to bring damage to

Claims (12)

Hide Dependent

1. a kind of osteoacusis loudspeaker arrangement characterized by comprising

Ear-hang ;

Circuit shell is connect for accommodating control circuit or battery, and with the ear-hang ;

Shell sheath is wherein molded on the ear-hang, the shell sheath is coated on the outer of the circuit shell in a manner of being set with It encloses.

2. osteoacusis loudspeaker arrangement according to claim 1, which is characterized in that the shell sheath is bag open at one end Shape structure, so that the circuit shell enters the inside of the shell sheath via the open end of the shell sheath.

3. osteoacusis loudspeaker arrangement according to claim 2, which is characterized in that the open end of the shell sheath is provided with Inwardly projecting collar flange, the

control circuit or battery, to influence the matter of osteoacusis loudspeaker arrangement Amount.

Utility model content

The application can be reduced in formative stage pair mainly solving the technical problems that provide a kind of osteoacusis loudspeaker arrangement Control circuit or battery adverse effect.

In order to solve the above technical problems, the technical solution that the application uses is: a kind of osteoacusis loudspeaker arrangement is provided, It include: ear-hang ; Circuit shell is connect for accommodating control circuit or battery, and with the ear-hang ; Wherein it is molded on the ear-hang There is shell sheath, the shell sheath is coated on the periphery of the circuit shell in a manner of being set with.

The beneficial effect of the application is: being in contrast to the prior art, molding of the application in osteoacusis loudspeaker arrangement And assembling stage, circuit shell and shell sheath are separately formed, are then set in together again, so as to avoid the two one When molding, hot environment is damaged to brought by control circuit or battery, to reduce formative stage to control circuit or battery Adverse effect.

Detailed description of the invention

In order to more clearly explain the technical solutions in the embodiments of the present application, make required in being described below to embodiment Attached drawing is briefly described, it should be apparent that, the drawings in the following description are only some examples of the present application, for For those of ordinary skill in the art, without creative efforts, it can also be obtained according to these attached drawings other Attached drawing.Wherein:

Fig. 1 is the configuration schematic diagram of one embodiment of the application osteoacusis loudspeaker arrangement ;

Fig. 2 is the partial structure diagram of ear-hang in one embodiment of the application osteoacusis loudspeaker arrangement ;

Fig. 3 is the partial enlarged view of part A in Fig. 2 ;

Fig. 4 is the partial cross-sectional view of one embodiment of the application osteoacusis loudspeaker arrangement ;

Fig. 5 is the partial enlarged view of part B in Fig. 4 ;

Fig. 6 is the partial structurtes sectional view of one embodiment of the application osteoacusis loudspeaker arrangement ;

Fig. 7 is the partial enlarged view of C portion in Fig. 6 ;

stepped setting in end of the circuit shell far from the ear-hang, and then form the first ring Shape table top, when the shell sheath is coated on the periphery of the circuit shell, the collar flange is connected to first ring On shape table top.

4. osteoacusis loudspeaker arrangement according to claim 3, which is characterized in that in the collar flange and first ring The engaging zones of shape table top are applied with sealant, the shell sheath and circuit shell to be connected and sealed.

5. osteoacusis loudspeaker arrangement according to claim 3, which is characterized in that be provided with edge on the first annular table top The locating piece that the circuit shell extends away from the direction of the ear-hang, is provided at the collar flange of the shell sheath and institute The corresponding locating slot of locating piece is stated, the locating slot is covered on the periphery of at least partly described locating piece, to protect to the shell Set is positioned.

6. osteoacusis loudspeaker arrangement according to claim 3, which is characterized in that the circuit shell includes fastening each other Two sub- shells, wherein the first annular table top is formed on the sub- shell, the shell sheath is to described two The joint close of sub- shell carries out all standing.

7. osteoacusis loudspeaker arrangement according to claim 6, which is characterized in that two sub- shells abutted each other connects Conjunction face is the stairstepping mutually agreed with.

8. osteoacusis loudspeaker arrangement according to claim 3, which is characterized in that be provided with multiple peaces in the circuit shell Hole is filled, and the outer surface depressions of the circuit shell are provided with the first glue groove, the multiple mounting hole is located at first glue In slot, the osteoacusis loudspeaker arrangement further comprises the conductive column being inserted in the mounting hole respectively, the shell sheath It further comprise the exposed hole for allowing the conductive column exposed, wherein sealant is applied in first glue groove, in institute The shell sheath and the circuit shell is connected and sealed in the periphery for stating mounting hole.

9. osteoacusis loudspeaker arrangement according to claim 8, which is characterized in that the osteoacusis loudspeaker arrangement

Fig. 8 is the partial structure diagram of the machine core shell of one embodiment of the application osteoacusis loudspeaker arrangement ;

Fig. 9 is the partial enlarged view of the part D in Fig. 8 ;

Figure 10 is the partial cross-sectional view of the machine core shell of one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 11 is the part explosive view of circuit shell and ear-hang in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 12 is the partial cross-sectional view of the part-structure of one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 13 is the partial enlarged view of the part E in Fig. 1 ;

Figure 14 is the sectional view of circuit shell in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 15 is the partial enlarged view of the part F in Figure 14 ;

Figure 16 is the explosive view of circuit shell and press-key structure in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 17 is the partial enlarged view of the part G in Fig. 6 ;

Figure 18 is the structural schematic diagram of conductive column in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 19 is cutting for circuit shell in one embodiment of the application osteoacusis loudspeaker arrangement, conductive column and main control board Face figure ;

Figure 20 is the partial enlarged view of the part H in Figure 19 ;

Figure 21 is that the partial structurtes of circuit shell and auxiliary piece are exploded in one embodiment of the application osteoacusis loudspeaker arrangement Figure ;

Figure 22 is that the partial structurtes of circuit shell and auxiliary piece are illustrated in one embodiment of the application osteoacusis loudspeaker arrangement Figure ;

Figure 23 is circuit shell and the partial structurtes explosive view hung afterwards in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 24 is circuit shell and the partial structurtes sectional view hung afterwards in one embodiment of the application osteoacusis loudspeaker arrangement ;

Figure 25 is the rear partial structural diagram hung in one embodiment of the application osteoacusis loudspeaker

further wraps Auxiliary piece is included, the auxiliary piece includes plate body, vacancy section is provided on the plate body, wherein the plate body is set to the circuit On the inner surface of shell, and the mounting hole is located inside the vacancy section, and then forms the second glue in the conductive column periphery Slot, wherein it is applied with sealant in second glue groove, it is close to be carried out in the inside of the circuit shell to the mounting hole Envelope.

10. osteoacusis loudspeaker arrangement according to claim 1, which is characterized in that the osteoacusis loudspeaker arrangement is further Including machine core shell, the machine core shell is provided with and is connected to the outer end face of the machine core shell for accommodating earphone core Jointing holes are provided with stop block on the inner sidewall of the jointing holes,

The ear-hang includes elastic metallic yarn and the end that patches for being set to described elastic metallic yarn one end, and the end that patches is wrapped It includes:

Insertion section is at least partially inserted into the jointing holes and being connected on the lateral surface of the stop block ;

Two elastic clamping hooks are set to the insertion section towards the side of the machine core enclosure interior, and two elastic clamping hooks can Close up each other under the action of external thrust and the stop block, and after the stop block elastic recovery at being placed in State on the medial surface of stop block, so realize the machine core shell and it is described patch end patch fixation.

11. osteoacusis loudspeaker arrangement according to claim 10, which is characterized in that the insertion section partial insertion is in described The stepped setting of exposed parts in jointing holes, and in the insertion section, and then form the outer end face with the machine core shell Spaced second circular table, the ear-hang further include being molded to hold periphery in the elastic metallic yarn and described patch Protection sleeve pipe, the protection sleeve pipe further extend to second circular table towards the machine core shell outer end face one Side, and abutted when termination inserts fixed with the machine core shell body elasticity in the machine core shell with described patch, and then realize sealing.

12. osteoacusis loudspeaker arrangement according to claim 11, which is characterized in

arrangement.

Specific embodiment

Below in conjunction with the attached drawing in the embodiment of the present application, technical solutions in the embodiments of the present application carries out clear, complete Site preparation description, it is clear that described embodiments are only a part of embodiments of the present application, rather than whole embodiments.Based on this Embodiment in application, those of ordinary skill in the art are obtained every other under the premise of not making creative labor Embodiment shall fall in the protection scope of this application.

Also referring to Fig. 1 to Figure 25, Fig. 1 to Figure 25 depicts the application osteoacusis loudspeaker arrangement.Bone in the application Conducting loudspeaker arrangement can be earphone, MP3 or other devices with loud-speaking function based on osteoacusis.Specifically, bone passes Lead loudspeaker arrangement can include: ear-hang 10, machine core shell 20, circuit shell 30, hang afterwards 40 and earphone core 50, control circuit 60, Battery 70.Wherein, machine core shell 20 and circuit shell 30 are respectively arranged at the both ends of ear-hang 10, and rear extension 40 is then further disposed upon The one end of circuit shell 30 far from ear-hang 10.Wherein, the quantity of machine core shell 20 is two, is respectively used to accommodate earphone core 50, The quantity of circuit shell 30 is also two, is respectively intended to accommodate control circuit 60 and battery 70, the both ends of rear extension 40 are separately connected Corresponding circuit shell 30.

Wherein, ear-hang 10 refers to when user wears osteoacusis loudspeaker arrangement, for surrounding and supporting the basal part of the ear in user Position, and then machine core shell 20 and earphone core 50 are hung and are fixed on the structure in user's ear predetermined position.

Specifically, ear-hang 10 includes elastic metallic yarn 11, conducting wire 12, fixed sleeving 13 and is set to elastic metallic yarn 11 The end that patches at both ends 14 and patches end 15, still further comprise protection sleeve pipe 16 and with the integrally formed shell of protection sleeve pipe 16 Sheath 17.

Wherein, elastic metallic yarn 11 be mainly used for making ear-hang 10 remain with the matched shape of user's ear, and have one Fixed elasticity generates certain elastic deformation so as to the ear type and head dummy when user wears according to user to be adapted to not With the user of ear type and head dummy.In present embodiment, elastic metallic yarn 11 can be made of memorial alloy, have good change Shape recovery capability, in external force removal, still is able to restore to original so that even ear-hang 10 is by external force generation deformation The shape come is can continue to that the protection sleeve pipe is in second ring The side of shape table top towards the outer end face of the machine core shell forms an annular abutment face and is located in the annular abutment face Portion and the annular convex platform being arranged relative to annular abutment face protrusion ;

The machine core shell further comprises the inner sidewall of the outer end face and the jointing holes for connecting the machine core shell Connect inclined-plane ;

Wherein, the machine core shell and it is described patch termination and insert fixed when, the annular abutment face and the annular convex platform point It is not abutted with the outer end face of the machine core shell and connection inclined-plane elasticity.

be used by user, to extend the service life of osteoacusis loudspeaker arrangement.Certainly, in other realities It applies in mode, elastic metallic yarn 11 can also be made of non-memory alloy.

Conducting wire 12 can be used for being electrically connected with earphone core 50 and control circuit 60, battery 70 etc., for earphone core 50 Work carry out electricity supply and data transmission.

Fixed sleeving 13 is used to conducting wire 12 being fixed on elastic metallic yarn 11.Specifically, the quantity of fixed sleeving 13 can Think one or more, specifically depending on actual needs.In present embodiment, fixed sleeving 13 is at least two, until Few two fixed sleevings 13 can be spaced setting along the trend of elastic metallic yarn 11 and conducting wire 12, and led by wrapping up setting The periphery of line 12 and elastic metallic yarn 11 and conducting wire 12 is fixed on elastic metallic yarn 11.

Patching end 14 and patching end 15 can be made of hard material, such as plastic cement.In present embodiment, patched making this When end 14 is with end 15 is patched, the two can be formed in the both ends of elastic metallic yarn 11 in a manner of injection molding respectively.In other realities It applies in mode, can also first dock spigot 14 and patch and hold 15 to be molded respectively, and be reserved respectively and elasticity gold in injection molding Belong to the connecting hole of 11 end of silk, to patch end 14 by this by connecting hole after the completion of injection molding and patch end 15 and insert respectively It connects in the corresponding end of elastic metallic yarn 11, or and is fixed by way of bonding.

It should be pointed out that patching end 14 and patching end 15 can not directly be molded and be formed in conducting wire in present embodiment 12 periphery, but conducting wire 12 is avoided in injection molding.It specifically, can be when injection molding patches end 14 and patches end 15, to being located at The conducting wire 12 at 11 both ends of elastic metallic yarn is fixed, and with the separate position for patching end 14 and patching end 15, and is further connecing It spigot 14 and patches the first cable tray 141 and the second cable tray 151 is respectively set on end 15, it, will with after the completion of injection molding Conducting wire 12 is extended along the first cable tray 141 and the second cable tray 151.Specifically, the first cable tray 141 is being formed After the second cable tray 151, conducting wire 12 can be penetrated to first cable tray 141 and the second cable tray in a manner of threading 151。

Certainly, in other embodiments, it will can also patch end 14 according to the actual situation and patch the directly injection molding of end 15 in the periphery of conducting wire 12, it is not specifically limited herein.

Specifically, in one embodiment, the first cable tray 141 may include that the first cabling channel 1411 is walled

with being connected to first First cable hole 1412 of wire casing 1411.Wherein, the connection of the first cabling channel 1411 patches the side wall surface setting at end 14, the first cabling The one end in hole 1412 is connected to one end of the first cabling channel 1411, and the other end is connected to the outer end face for patching end 14.Patch end 14 The conducting wire 12 at place extends along the first cabling channel 1411 and the first cable hole 1412 and exposes to the outer end face for patching end 14, with into one Step is connect with other structures.

Correspondingly, the second cable tray 151 may include the second cabling channel 1511 and be connected to the second of the second cabling channel 1511 Cable hole 1512.Wherein, the second cabling channel 1511 connection patches end 15 side wall surface setting, one end of the second cable hole 1512 with One end of second cabling channel 1511 is connected to, and the other end is connected to the outer end face for patching end 15.The conducting wire 12 at end 15 is patched along the Two cabling channels 1511 and the second cable hole 1512 extend and expose to the outer end face for patching end 15, further to connect with other structures It connects.

Wherein, the outer end face for patching end 14, which refers to, patches end face of the end 14 far from the one end for patching end 15 ; Correspondingly, it patches The outer end face at end 15, which refers to, patches end face of the end 15 far from the one end for patching end 14.

Further, protection sleeve pipe 16, which can be molded, is formed in elastic metallic yarn 11, conducting wire 12, fixed sleeving 13, patches end 14 and patch end 15 periphery, thus by protection sleeve pipe 16 respectively with elastic metallic yarn 11, conducting wire 12, fixed sleeving 13, patch End 14 is fixedly connected with end 15 is patched, without protection sleeve pipe 16 is individually further sleeved on elastic metallic after injection molding is formed Silk 11 and the periphery for patching end 14, patching end 15, so as to simplify production and assembly process, and in this way, energy Enough so that the fixation of protection sleeve pipe 16 is more firm, stablizes.

Further, in ovennold pipe 16, while with the protection sleeve pipe 16 integrally formed with being disposed in proximity to connect The shell sheath 17 of 15 side of spigot.

Wherein, shell sheath 17 can be made of one piece with protection sleeve pipe 16 and be integral, circuit shell 30 can by with Patch patching fixed and connecting one end that ear-hang 10 is set for end 15, shell sheath 17 then can the further packet in a manner of suit It is overlying in the periphery of circuit shell 30.

Wherein, protection sleeve pipe 16 and shell sheath 17 can be made of the soft material with certain elasticity, such as soft Silica gel, rubber etc..

Specifically, it when manufacturing the ear-hang 10 of osteoacusis loudspeaker arrangement, can be achieved by the steps of:

Step S101: conducting wire 12 is fixed on elastic metallic yarn 11 using fixed sleeving 13, wherein in elastic metallic yarn 11 both ends reserve injection molding position ;

Specifically, can by first by elastic metallic yarn 11 and conducting wire 12 according in a manner of preset, such as it is placed side by side together, so Afterwards, fixed sleeving 13 is further set in the periphery of conducting wire 12 Yu elastic metallic yarn 11, so that conducting wire 12 is fixed on elasticity On wire 11.

Wherein, since the both ends of elastic metallic yarn 11 also need injection molding to patch end 14 and patch end 15, in fixation When, it is fully wrapped around that the both ends of elastic metallic yarn 11 cannot be fixed casing 13, and need to reserve corresponding injection molding position, for patching End 14 is occupied with 15 injection molding of end is patched.

Step S102: injection molding patches end 14 and patches end 15 respectively on the injection molding position at the both ends of elastic metallic yarn 11, In patch end 14 and patch end and 15 be respectively arranged with the first cable tray 141 and the second cable tray 151 ;

Step S103: conducting wire 12 is arranged to extend along the first cable tray 141 and the second cable tray 151 ;

It specifically, herein can be after the completion of patching end 14 and patching 15 molding of end, further by either manually or by machine The both ends of conducting wire 12 are respectively penetrated the first cable tray 141 and the second cable tray 151 by device.Wherein, conducting wire 12 is located at first Part between cable tray 141 and the second cable tray 151 is fixed on elastic metallic yarn 11 by fixed sleeving 13.

Step S104: it in elastic metallic yarn 11, conducting wire 12, fixed sleeving 13, patches end 14 and patches the peripheral of end 15 and infuse Moulding is at protection sleeve pipe 16.

In one embodiment, when executing step S104,15 periphery of end is further formed and patched in a manner of injection molding The integrally formed shell sheath 17 of protection sleeve pipe 16.

It should be pointed out that in other embodiments, conducting wire 12 can also be first not provided with when installing fixed sleeving 13, And it is patching end 14 and is patching 15 injection molding of end and then further setting conducting wire 12, the specific steps are as follows:

Step S201: fixed sleeving 13 is sheathed on elastic metallic yarn 11, wherein pre- at the both ends of elastic metallic yarn 11 Reserve injection molding position ;

Step S202: injection molding patches end 14 and patches end 15 respectively on the injection molding position at the both ends of elastic metallic yarn 11, In patch end 14 and patch end and 15 be respectively arranged with the first cable tray 141 and the second cable tray 151 ;

Conducting wire 12: being arranged in the inside of fixed sleeving 13 by step S203, with using fixed sleeving 13 that conducting wire 12 is fixed In on elastic metallic yarn 11, and further conducting wire 12 is arranged to prolong along the first cable tray 141 and the second cable tray 151 It stretches.

It should be pointed out that in this way, can be avoided and led when docking spigot 14 and patching 15 injection molding of end The interference of line 12, to be conducive to molding go on smoothly.

Wherein, elastic metallic yarn 11 involved by method in present embodiment and above embodiment, conducting wire 12, Fixed sleeving 13, patch end 14, patch end 15 and structure, effect and the generation type of protection sleeve pipe 16 etc. with above-mentioned implementation Identical in mode, related detailed content refers to above embodiment, and details are not described herein again.

In one embodiment, machine core shell 20 can be used for accommodating earphone core 50, and patch fixation with end 14 is patched.Its In, the quantity of earphone core 50 and machine core shell 20 is two, respectively corresponds the left and right ear of user.

Specifically, machine core shell 20 can be connect with end 14 is patched by modes such as grafting, clampings, by machine core shell 20 It is fixed together with ear-hang 10.That is, ear-hang 10 can be first separately formed with machine core shell 20, then in present embodiment Further it is assembled together, rather than by the two one straight forming.

In this way, ear-hang 10 and machine core shell 20 can be separately formed using corresponding mold, and nothing The two need to be integrally formed using the mold of the same larger size, so as to reduce the size of mold, to reduce adding for mold Work difficulty, and molding difficulty ; In addition, being produced since different mold processing is respectively adopted in ear-hang 10 and machine core shell 20 in manufacturing process, need in ear-hang 10 or machine core shell 20 the shape of some or construction be adjusted when, only adjust The corresponding mold of the whole structure, is adjusted without the mold to another structure, is produced into so as to reduce This.

Certainly, in other embodiment, according to circumstances ear-hang 10 and machine core shell 20 can also be made to pass through one Molding obtains.

In one embodiment, machine core shell 20 is provided with the jointing holes 22 being connected to the outer end face

21 of machine core shell 20, Stop block 23 is provided on the inner sidewall of jointing holes 22.

Wherein, the outer end face 21 of machine core shell 20 refers to machine core shell 20 towards the end face of ear-hang 10.Jointing holes 22 are used for Accommodating space is provided for the 14 insertion machine core shell 20 of end that patches of ear-hang 10, patches end 14 and machine core shell to further realize 20 patch fixation.

Stop block 23, which can be protruded by the inner sidewall of jointing holes 22 along the direction perpendicular to the inner sidewall, to be formed.Specifically, Stop block 23 can be multiple spaced block-shaped protrusions, or may be the annular projection along 22 inner sidewall of jointing holes, It is not specifically limited herein.

Wherein, patching end 14 includes insertion section 142 and two elastic clamping hooks 143.

Specifically, insertion section 142 is at least partially inserted into jointing holes 22 and being connected to the lateral surface 231 of stop block 23 On.Wherein, the shape of the inner sidewall of the shape with jointing holes 22 of the lateral wall of insertion section 142 matches so that insertion section 142 to When small part is inserted in jointing holes 22, so that the lateral wall of insertion section 142 is abutted with the inner sidewall of jointing holes 22.

The lateral surface 231 of stop block 23 refers to the one side that stop block 23 is arranged towards ear-hang 10.It insertion section 142 can be into one Step includes one towards the end face of machine core shell 20 1421, which can match with the lateral surface 231 of stop block 23, thus Insertion section 142 is at least partially inserted into when in jointing holes 22, the end face 1421 of insertion section 142 and the lateral surface 231 of stop block 23 it abuts.

Specifically, the edge of the jointing holes 22 of machine core shell 20 is perpendicular to patching 14 insertion side relative to machine core shell 20 of end Upward cross sectional shape can be oval ring or nearly oval ring, and accordingly, the cross section of insertion section 142 can be and jointing holes 22 matched nearly ellipses, certainly, the shape of the two can also be it is other, can specifically be configured according to actual needs.

Further, two elastic clamping hooks 143 can be along being perpendicularly to the insertion direction side by side and be spaced and be symmetrically disposed on insertion Portion 142 is towards the side inside machine core shell 20.Wherein, each elastic clamping hook 143 can respectively include beam portion 1431 and hook part 1432, beam portion 1431 is connect with the side of insertion section 142 towards machine core shell 20, and the setting of hook part 1432 is in beam portion 1431 far from slotting Enter the one end in portion 142, and edge is perpendicularly to the insertion direction extension.Further, each hook part 1432 be provided with connection be

parallel to it is slotting Enter the side in direction and the intermediate incline 14321 of the end face far from insertion section 142.

In the installation process of ear-hang 10 and machine core shell 20, patches end 14 and progress into machine core shell by jointing holes 22 Inside 20, when reaching the position of stop block 23, the hook part 1432 of two elastic clamping hooks 143 will receive the blocking of stop block 23, Under the action of external thrust, stop block 23 gradually squeezes the intermediate incline 14321 of hook part 1432 and makes two elastic clamping hooks 143 occur elastic deformations and close up each other, reach stop block 23 close to machine core shell by stop block 23 in intermediate incline 14321 When side inside body 20, elastic clamping hook 143 is placed in 23 court of stop block because losing the blocking of stop block 23 due to elastic recovery To on the medial surface inside machine core shell 20, so that stop block 23 to be placed in the insertion section 142 and hook part 1432 for patching end 14 Between, and then realize that machine core shell 20 patches fixation with end 14 is patched.

Wherein, in one embodiment, machine core shell 20 and patch end 14 patch it is fixed after, 142 part of insertion section is inserted Enter in jointing holes 22, and the stepped setting of the exposed parts in insertion section 142, and then forms the outer end with machine core shell 20 The spaced circular table 1422 in face 21.

It should be pointed out that the exposed parts of insertion section 142 refer to that insertion section 142 exposes to the part of machine core shell 20, Specifically, it can refer to and expose to machine core shell 20 and the part close to 20 outer end face of machine core shell.

Wherein, circular table 1422 can be oppositely arranged with the outer end face 21 of machine core shell 20, and interval between the two it can refer to that edge patches direction interval and along perpendicular to the interval for patching direction.

Further, protection sleeve pipe 16 extend to circular table 1422 towards machine core shell 20 outer end face 21 side, And in the jointing holes of machine core shell 20 22 and when patching end 14 and patching fixed, it is filled in circular table 1422 and machine core shell 20 In interval between outer end face 21, and is abutted with the elasticity of machine core shell 20 so that outside liquid be difficult to from patch end 14 and Joint between machine core shell 20 enters inside machine core shell 20, so realize patch end 14 and jointing holes 22 between it is close Envelope, to protect the earphone core 50 etc. inside machine core shell 20, so as to improve the waterproof effect to osteoacusis loudspeaker arrangement.

Specifically, in an embodiment, protection sleeve pipe 16 is in circular table 1422 towards the outer end of machine core shell 20 21 sides in face form an annular abutment

face 161.Wherein, which is protection sleeve pipe 16 towards machine core shell 20 The end face of side.

Further, protection sleeve pipe 16 further includes being located at 161 inside of annular abutment face and relative to annular abutment face 161 Protrude the annular convex platform 162 of setting.Specifically, which is specifically formed in annular abutment face 161 towards patching end 14 Side, and relative to the annular abutment face 161 along towards the direction of machine core shell 20 protrude be arranged, further, the annular Boss 162 is also formed directly in the periphery of circular table 1422, and covers the circular table 1422.

Further, machine core shell 20 includes the inner sidewall of the outer end face 21 for connecting machine core shell 20 and jointing holes 22 Connection inclined-plane 24.Wherein, the connection inclined-plane 24 be specially machine core shell 20 outer end face 21 and jointing holes 22 inner sidewall it Between transition face, the outer end face 21 of the connection inclined-plane 24 and machine core shell 20 and the inner sidewall of jointing holes 22 be not in same plane On.Wherein, which can be plane, perhaps can also be arranged to curved surface or other shapes according to actual needs Shape is not specifically limited herein.

Specifically, machine core shell 20 and patch end 14 patch fixed when, annular abutment face 161 and annular convex platform 162 divide Not with the outer end face of machine core shell 20 and connect the elasticity of inclined-plane 24 and abut.

It should be pointed out that due to machine core shell 20 outer end face 21 and connection inclined-plane 24 not in the same plane, thus So that the elastic place of abutting between protection sleeve pipe 16 and machine core shell 20 is not in the same plane, so that outside liquid is difficult By entering machine core shell 20 between protection sleeve pipe 16 and machine core shell 20 to travel further into earphone core 50, so as to improve The waterproof effect of osteoacusis loudspeaker arrangement to play a protective role to internal functional architecture, and then extends osteoacusis loudspeaker arrangement Service life.

Wherein, in one embodiment, insertion section 142 is in circular table 1422 towards the outer end face 21 of machine core shell 20 Side is formed further with the annular groove 1423 adjacent with circular table 1422, wherein annular convex platform 162 can be formed in annular In groove 1423.

In present embodiment, annular groove 1423 can be formed in circular table 1422 towards the side of machine core shell 20.? In one application scenarios, circular table 1422 is the side wall surface towards 20 side of machine core shell of annular groove 1423, at this point, ring Shape boss 162 is formed in annular groove 1423 along the side wall surface.

In one embodiment, one end of the outside positioned at machine core shell 20 of the conducting wire 12 of ear-hang 10 may pass through second and walk Line passage 151 and further connect outer outside the machine cores shells 20 such as control circuit 60, battery 70 that circuit shell 30 is accommodated Portion's circuit, the other end are then exposed to the outer end face for patching end 14 along the first cable tray 141, and further with insertion section 142 And entered inside machine core shell 20 by jointing holes 22.

In one embodiment, machine core shell 20 may include main casing 25 and baffle assembly 26, wherein baffle assembly 26 It is connect inside main casing 25, and with main casing 25, and then the inner space of main casing 25 27 is separated into the first accommodating sky Between 271 and close to 22 side of jointing holes the second accommodating space 272.

Specifically, main casing 25 includes all side walls 251 and the base end wall 252 connecting with an end face of all side walls 251, week Side wall 251 and base end wall 252 are jointly around the inner space 27 for forming a main casing 25.

Baffle assembly 26 is located at the side of the close jointing holes 22 of main casing 25, and including side partition 261 and base spacer 262.Wherein, side partition 261 can along perpendicular to base end wall 252 direction be arranged, and the both ends of side partition 261 with all side walls 251 connections, so that the inner space 27 to main casing 25 is separated.Base spacer 262 can be parallel or close with base end wall 252 Parallel and interval setting, and further connect respectively with all side walls 251 and side partition 261, so that main casing 25 is formed by inner space 27 is divided into two and is formed by side partition 261, base spacer 262 and all side walls 251 far from jointing holes 22, base end wall 252 the first accommodating spaces 271 surrounded jointly, and by base spacer 262 and side partition 261 and close to all side walls of jointing holes 22 251 the second accommodating spaces 272 surrounded jointly.Wherein, the second accommodating space 272 is smaller than the first accommodating space 271.

Certainly, baffle assembly 26 can also be drawn by inner space 27 of other set-up modes to main casing 25 Point, it is not specifically limited herein.

Further, earphone core 50 includes functional unit 51, which is set in the first accommodating space 271, It can be used for vibration sounding.Osteoacusis loudspeaker arrangement can further comprise the conducting wire 80 that one end is connect with functional unit 51, the conducting wire 80 other end can be extended in the second accommodating space 272 by the first accommodating space 271.

Specifically, cabling channel 2611, the cabling channel can be arranged in the top edge far from base end wall 252 in

side partition 261 2611 can be connected to the first accommodating space 271 and the second accommodating space 272.Further, the one of the separate functional unit of conducting wire 12 End extends in the second accommodating space 272 via the cabling channel.

In addition, one end of the separate circuit shell 30 of the conducting wire 12 of ear-hang 10 enters in machine core shell 20 with insertion section 142 It behind portion, may be further extended in the second accommodating space 272, and be electrically connected in the second accommodating space 272 with conducting wire 80, with shape At the conductive paths for being connected to external circuit via the second accommodating space 272 from the first accommodating space 271, to be led by this Functional unit 51 is electrically connected by line access with the external circuit being located at outside machine core shell 20.

Specifically, it may be provided with cable hole 2621 on base spacer 262, which accommodates jointing holes 22 and second Space 272 is connected to, so that can be prolonged via the cable hole 2621 by the conducting wire 12 that jointing holes 22 enter machine core shell 20 Extend to the second accommodating space 272.

Wherein, after conducting wire 12 and conducting wire 80 connect in the second accommodating space 272, coiling is set to the second accommodating space In 272.Specifically conducting wire 12 and conducting wire 80 can be connected together by welding, and then by functional unit 51 and external electrical Road electrical connection, to provide electricity as the normal work of functional unit 51 by external circuit or be that earphone core 50 transmits data.

It should be pointed out that conducting wire is often longer than actual demand, when assembling to osteoacusis loudspeaker arrangement in order to fill Match.If however conducting wire extra at earphone core 50 can not be placed reasonably, and the production when functional unit 51 works is easy Life is vibrated and issues abnormal sound, so that the sound quality of osteoacusis loudspeaker arrangement is reduced, to influence the audition impression of user.This reality Apply in mode, the main casing 25 of machine core shell 20 be formed by inner space 27 isolate the second accommodating space 272 with For accommodating extra conducting wire 12 and conducting wire 80, thus avoid or reduce extra conducting wire to due to vibration to osteoacusis loudspeaking The influence for the sound that device is issued, to improve sound quality.

In one embodiment, baffle assembly 26 further comprises internal partition 263, and internal partition 263 further holds second 272 are separated into two sub-accommodating spaces 2721 between emptying.Specifically, base end wall 252 of the internal partition 263 perpendicular to main casing 25 Setting connect with side partition 261 and all side walls 251

respectively, and further extends at cable hole 2621, to hold by second 272 while be divided into two sub-accommodating space 2721 between emptying, and cable hole 2621 is further also divided into two, two are walked String holes 2621 can be connected to corresponding sub-accommodating space 2721 respectively.

In present embodiment, conducting wire 12 and conducting wire 80 may respectively be two, wherein two conducting wires 12 respectively along it is corresponding walk String holes 2621 and separately extend in respective sub-accommodating space 2721, and two conducting wires 80 then still together pass through cabling channel 2611 And enter the second accommodating space 272, and separate after entering the second accommodating space 272, and respectively in corresponding sub- accommodating space It is welded in together in 2721 with corresponding conducting wire 12, and further coiling is set in corresponding sub- accommodating space 2721.

Further, in one embodiment, the second accommodating space 272 can be further filled by sealant.Pass through This mode can further fix the conducting wire 12 accommodated in the second accommodating space 272 and conducting wire 80, to further decrease The adverse effect caused by sound quality as conductor vibration, to improve the sound quality of osteoacusis loudspeaker arrangement, simultaneously it can play a protective role to the pad between conducting wire 12 and conducting wire 80, in addition, also by 272 sealed set of the second accommodating space It can achieve the purpose that water proof and dust proof.

In one embodiment, circuit shell 30 patches fixation with end 15 is patched, so that circuit shell 30 is fixed on ear Hang 10 one end far from machine core shell 20.Wherein, it is worn in user in use, accommodating the circuit shell 30 of battery 70 and accommodating control The circuit shell 30 of circuit 60 processed can respectively correspond the left and right side of user, the two with the corresponding side of patching for patching end 15 it can be different in formula.

Specifically, circuit shell 30 can be connect with end 15 is patched by modes such as grafting, clampings.That is, this reality It applies in mode, ear-hang 10 first can be formed independently with circuit shell 30, then and after the completion of molding be further assembled in Together, rather than directly the two is integrally formed.

In this way, ear-hang 10 and circuit shell 30 can be separately formed using corresponding mold, and nothing The two need to be integrally formed using the mold of the same larger size, so as to reduce the size of molding die, to reduce mold Difficulty of processing, and molding difficulty ; In addition, since different mold processing is respectively adopted in ear-hang 10 and circuit shell 30, During the manufacturing, need in ear-hang 10 or circuit shell 30 the shape of some or construction be adjusted when, The corresponding mold of the structure is only

adjusted, is adjusted without the mold to another structure, so as to reduce life Produce cost.

Further, in one embodiment, circuit shell 30 is provided with jointing holes 31, the inner surface of the jointing holes 31 Shape can match with the shape of at least partly outer surface for patching end 15 so that patch hold 15 can be at least partially inserted into In jointing holes 31.

Further, insertion of the end 15 relative to jointing holes 31 is respectively arranged with and patched in the opposite sides for patching end 15 The vertically disposed fluting 152 in direction.Specifically, two flutings 152 are symmetrical and are arranged at intervals at the opposite sides for patching end 15, and Connection patches the side wall at end 15 in the vertical direction along direction of insertion.

Correspondingly, be provided on the first side wall 30a of circuit shell 30 it is corresponding with two 152 positions of fluting through this Two through-holes 32 of one side wall 30a.

Wherein, circuit shell 30 can be in flat setting, for example, circuit shell 30 is transversal at the second jointing holes 31 Face can be ellipse, or be capable of forming the other shapes of flat setting.In present embodiment, the area of circuit shell 30 Biggish two side walls being oppositely arranged be major side wall 33, connect two major side walls 33 area it is lesser and be oppositely arranged two To sidewall 34 supplemented by side wall.In present embodiment, the first side wall 30a of circuit shell 30 both can be the master of the circuit shell 30 The auxiliary sidewall 34 of side wall 33 or circuit shell 30, can specifically be set according to actual needs.

Certainly, in other embodiments, cross section of the circuit shell 30 at jointing holes 31 can also wait it to be round Its shape can be specifically configured according to actual needs.

Further, osteoacusis loudspeaker arrangement can also include fixing piece 81, and fixing piece 81 includes two disposed in parallel Pin 811 and interconnecting piece 812 for connecting pin 811.Specifically, interconnecting piece 812 can vertically be connected in two pins 811 towards unidirectional one end, to form U-shaped fixing piece 81.

Wherein, two one end of pin 811 far from interconnecting piece 812 are inserted into out from the outside via through holes 32 of circuit shell 30 Slot 152, and interconnecting piece 812 is barred to the outside of circuit shell 30, and then realize circuit shell 30 and patch patching for end 15 It is fixed.

Further, in one embodiment, it is formed further on the first side wall 30a of circuit shell 30 for connecting The strip groove 35 of two through-holes 32, when patching fixed using fixing piece 81, interconnecting piece 812 can be further partially or complete Portion is heavy to be set in strip groove 35.To on the one hand enable to osteoacusis

loudspeaker arrangement whole more unified, so that set Groove corresponding with interconnecting piece 812 is set without special molding on the shell sheath 17 of 30 periphery of circuit shell, simplifies shell The mold of body sheath 17 ; On the other hand, additionally it is possible to reduce osteoacusis loudspeaker arrangement integrally occupied space to a certain extent.

It wherein, can be some or all of heavy in strip groove 35 by interconnecting piece 812 in an application scenarios Afterwards, further in 35 internal sizing of strip groove, in this way, on the one hand fixing piece 81 can be fixed on circuit shell 30 On, it is more consolidated so that patching patching between end 15 and jointing holes 31 ; On the other hand, heavy set on item in interconnecting piece 812 After shape groove 35, further groove 35 is filled and led up by sizing, is consistent with the first side wall 30a with circuit shell 30, from And after being arranged shell sheath 17, so that more smooth coherent between the groove 35 and peripheral structure.

Wherein, in one embodiment, second side of the circuit shell 30 opposite with the first side wall 30a of circuit shell 30 The through-hole 36 opposite with through-hole 32 is further provided on wall 30b, pin 811 is further inserted into through-hole 36 through fluting 152.

Specifically, the first side wall 30a of the circuit shell 30 and second sidewall 30b of circuit shell 30 can be circuit shell 30 major side wall 33 or auxiliary sidewall 34.In the present embodiment, the first side wall 30a and second sidewall 30b of circuit shell 30 The respectively major side wall 33 that is oppositely arranged of two of circuit shell 30.That is, two through-holes 32 and two through-holes 36 divide Be not set on the biggish side wall of area of circuit shell 30, so can be set between two pins 811 of fixing piece 81 compared with Big interval, to increase the span of fixing piece 81, so as to improve the stability for patching and patching between end 15 and jointing holes 31.

In present embodiment, 811 via through holes 32 of pin be inserted into fluting 152 in, and further through fluting 152 be inserted into it is logical In hole 36, that is to say, that pin 811 by two opposing major side walls 33 of circuit shell 30 and can patch end 15 completely through simultaneously Be fixed together so that patch end 15 and circuit shell 30 between patch it is stronger.

Further, as described in above embodiment, protection sleeve pipe 16 form when, while with the protection sleeve pipe 16 1 It is body formed to have the shell sheath 17 for being disposed in proximity to patch 15 sides of end.

Wherein, which is separately formed with circuit shell 30, and makes the shape of the inner sidewall of the shell sheath 17 Shape is matched with the lateral wall of circuit shell 30, and then after the two is separately formed completion, by shell sheath 17 with the side of suit Formula is coated on the periphery of circuit shell 30.

It should be pointed out that since the environment temperature when shell sheath 17 forms is higher, and hot environment may be right The control circuit 60 or battery 70 that circuit shell 30 is accommodated cause certain damage, therefore, in formative stage, by circuit shell 30 and shell sheath 17 be separately formed, be then set in together again, so as to avoid shell sheath 17 at the time of molding, high temperature pair Damage brought by control circuit 60 or battery 70, to reduce molding to unfavorable shadow brought by control circuit 60 or battery 70 It rings.

Further, shell sheath 17 can be bag shaped structure open at one end, so that circuit shell 30 is via shell The open end of sheath 17 enters the inside of shell sheath 17.

In present embodiment, shell sheath 17 be integrally formed with protection sleeve pipe 16 and after being formed, can be by from opening Mouth end carries out turnup to shell sheath 17 and is removed from the mold ; Visual examination and silk-screen are being carried out to shell sheath 17 When Deng being surface-treated, further shell sheath 17 can be set in preset structure by opening and be operated, and operated After the completion, further it is removed from the preset structure and carrying out turnup to shell sheath 17 from opening ; It is checking And after the completion of the operations such as processing, shell sheath 17 can be further sleeved on to the periphery of circuit shell 30 by being open.It is above-mentioned in operation, shell sheath 17 is being removed to the mode for being not limited to above-mentioned turnup, can not also done herein by modes such as inflations It is specific to limit.

Specifically, the open end of shell sheath 17 is one end that shell sheath 17 deviates from protection sleeve pipe 16, thus the circuit Shell 30 enters the inside of shell sheath 17 from shell sheath 17 far from one end of protection sleeve pipe 16, for 17 institute of shell sheath Cladding.

In one embodiment, the open end of shell sheath 17 is provided with inwardly projecting collar flange 171.Further Ground, the stepped setting in end of the circuit shell 30 far from ear-hang 10, and then form circular table 37 When shell sheath 17 coats When the periphery of circuit shell 30, collar flange 171 is connected on circular table 37.

Specifically, collar flange 171 by shell sheath 17 open end inner wall towards protruding inside shell sheath 17 Certain thickness is formed, and including one towards ear-hang 10 flange surface 172.

Wherein, circular table 37 and flange surface 172 are opposite, and deviate from the direction of ear-hang 10 towards circuit shell 30.

The height of the flange surface 172 of the collar flange 171 is not more than the height of circular table 37, so that cyclic annular convex When the flange surface 172 and circular table 37 of edge 171 abut against, the inner wall of shell sheath 17 can be with the side wall of circuit shell 30

Face sufficiently abuts, so that shell sheath 17 can closely be coated on the periphery of circuit shell 30.

It further, in one embodiment, can be into one in the engaging zones on collar flange 171 and circular table 37 Step is applied with sealant.Specifically, when being set with to shell sheath 17, sealant can be coated on circular table 37, To which shell sheath 17 and circuit shell 30 are connected and sealed.

Wherein, in one embodiment, it is additionally provided with locating piece 38 in circuit shell 30, which is set to annular On table top 37, and extend along circuit shell 30 away from the direction of ear-hang 10.Specifically, which may be disposed at circuit shell In 30 auxiliary sidewall 34, and the thickness that the locating piece 38 is protruded above in auxiliary sidewall 34 is consistent with the height of circular table 37.Wherein, One or more can be arranged in the quantity of locating piece 38 according to demand.

Correspondingly, it is provided with locating slot 173 corresponding with locating piece 38 at the collar flange 171 of shell sheath 17, thus When shell sheath 17 is coated on the periphery of circuit shell 30, which is covered at least partly locating piece 38.

It in this way, can be according to the position of locating piece 38 and locating slot 173 when being set with to shell sheath 17 It sets and shell sheath 17 is positioned, it is quick to facilitate operation personnel, accurate to install.Certainly, in other embodiments, It can be not provided with locating piece according to actual needs.

In one embodiment, circuit shell 30 includes the two sub-shells fastened each other, the respectively first sub- shell 301 With the second sub- shell 302.Specifically, two sub-shells can along circuit shell 30 middle line and symmetrically fasten, or can also be with It is fastened by other means according to actual needs.In addition, two sons of the circuit shell 30 for accommodating control circuit 60 The manner of shell can be identical with the manner of two sub- shells of the circuit shell 30 for accommodating battery 70, It can also be different.

In an application scenarios, the circular table 37 of circuit shell 30 can be formed on the first sub- shell 301, two sons Shell is engaged in circular table 37 towards the side of ear-hang 10, so that shell sheath 17 can be to the engagement of two sub- shells Seam carries out all standing, is sealed so as to the inner space to a certain extent to circuit shell 30, to improve osteoacusis The waterproof effect of loudspeaker arrangement.

In another application scene, the circular table 37 of circuit shell 30 can also be collectively formed by two sub- shells, from And the two at least partly position is combined in circular table 37 away from the side of ear-hang 10.At this point, shell sheath 17 can not The joint close for being located at circular table 37 and deviating from 10 side of ear-hang of two sub- shells of covering.It, can be further in

this application scene The joint close of the part is covered otherwise.

Further, in one embodiment, the joint surface that two sub-shells abut each other is the stairstepping agreed with mutually Shape.

Specifically, the end face of the second sub- shell 302 of direction of the first sub- shell 301 is stair-stepping first cascaded surface 3011, the end face of the first sub- shell 301 of direction of the second sub- shell 302 is stair-stepping second cascaded surface 3021.First ladder The shape and size uniformity of face 3011 and the second cascaded surface 3021 cause, and abut together so as to work in coordination.

In this way, the faying face that two sub- shells of circuit shell 30 mutually abut against is into a ladder without same In plane, so as to stop the liquid outside circuit shell 30 to be entered in circuit shell 30 by the periphery of circuit shell 30 Portion, and then further increase the waterproof effect of osteoacusis loudspeaker arrangement, with to inside circuit shell 30 control circuit 60 or Battery 70 etc. is protected.

Further, the peace towards the first sub- shell 30a is provided on the second cascaded surface 3021 of the second sub- shell 302 Be loaded hook 3022, and accordingly, being internally provided with for the first sub-shell 301 hooks slot with the matched installation of the installation hook 3022 3012.When installing to the first sub-shell 301 and the second sub- shell 302, installation hook 3022 can be got in external thrust It crosses installation to hook the lateral wall of slot 3012 and enter the installation and hook slot 3012, and the hook part hook joint installation for installing hook 3022 is hooked The inner sidewall of slot 3012, to realize the fastening of the first sub- shell 301 and the second sub- shell 302.

In one embodiment, osteoacusis loudspeaker arrangement is further provided with press button mechanism.

Specifically, it is provided with the first depressed area 341 on the outer surface of the auxiliary sidewall 34 of circuit shell 30, first depressed area Key hole 342 is further provided in 341, which is connected to outer surface and the inner surface of auxiliary sidewall 34.

Wherein, the auxiliary sidewall 34 of circuit shell 30 may include that, when user wears the osteoacusis loudspeaker arrangement, direction is used The auxiliary sidewall 34 of family back head, also may include user wear when, towards user's head on the downside of auxiliary sidewall 34.

The quantity of first depressed area 341 can be one or more, and can be set one in each first depressed area 341 A or multiple key holes 342, can specifically be arranged according to actual needs, be not specifically limited herein.

In present embodiment, osteoacusis loudspeaker arrangement still further comprises elastic backing 82, key 83, and control circuit 60 is wrapped include button circuit board 61.

Wherein, elastic backing 82 is set to the first depressed area 341, is specifically fixed on the corresponding auxiliary side in the first depressed area 341 On the outer surface of wall 34, to be covered in the outside of key hole 342 to avoid outside liquid from entering circuit by key hole 342 The inside of shell 30, to play the role of sealing waterproof.

Further, second depressed area 821 corresponding with key hole 342 is provided on the elastic backing 82, this is second recessed Fall into the inside that area 821 extends to key hole 342.

Specifically, which can be made of soft materials, such as soft silica gel, rubber etc..And the elasticity Pad it is 82 relatively thin, when directly Nian Jie with the outer surface of auxiliary sidewall 34, it is difficult to which it is firm to be bonded.

Therefore, in one embodiment, rigid liner further can be set between elastic backing 82 and circuit shell 30 84, rigidity liner 84 is fixed against each other with elastic backing 82, specifically can be real by way of fitting, bonding, injection molding etc. It is existing, and further carry out with auxiliary sidewall 34 rigidity liner 84 be bonded, can be specifically bonded by using double-sided adhesive, with An adhesive-layer is formed between rigidity liner 84 and auxiliary sidewall 34, so that elastic backing 82 can be clamped securely to auxiliary side wall 34 outer surface.Moreover, because 82 matter of elastic backing is soft and thin, therefore it is difficult to keep flat in the process of user's pressing keys Whole state, and by the fixation that reclines with rigidity liner 84, elastic backing 82 can be made to keep smooth.

Further, it is provided with the through-hole 841 for allowing the second depressed area 821 to pass through on rigidity liner 84, so that bullet Property liner 82 the second depressed area 821 inside of key hole 342 can be further extended to by through-hole 841.

Specifically, rigidity liner 84 can be made of stainless steel or other rigid materials, such as plastic cement hard material. And it can be sticked together by integrated molding and elastic backing 82.

In addition, key 83 includes keying body 831, and the key touching of 831 side of keying body protrusion setting is set First 832.Wherein, keying body 831 is set to side of the elastic backing 82 far from circuit shell 30, and key contact 832 extends To the second depressed area 821, to be extended to inside key hole 342 with the second depressed area 821.

Further, due in present embodiment osteoacusis loudspeaker arrangement it is more frivolous, the pressing

stroke of key 83 is shorter, User can be then reduced according to soft key to press feel and bring bad experience.In present embodiment, key 83 can be by The plastic material of hard is made, so that user can have good feel when pressing.

Further, button circuit board 61 is set to the inside of circuit shell 30, is provided with corresponding with key hole 342 Key switch 611.To which in user's pressing keys, key contact 832 contacts and triggers key switch 611, with further Realize corresponding function.

In present embodiment, by the way that the second depressed area 821 is arranged on elastic backing 82, on the one hand, the second depressed area 821 Setting can cover entire key hole 342, so as to improve waterproof effect simultaneously ; On the other hand, in its natural state, press Key contact 832 just can be extended into inside key hole 342 by the second depressed area 821, so as to shorten key press Stroke to reduce the occupied space of press-key structure, and then the waterproof performance that have osteoacusis loudspeaker arrangement can either, and accounts for With leas space.

In one embodiment, key 83 may include key monomer 833, the quantity of key monomer 833 can for one or Person is multiple.

In an application scenarios, key 83 may include at least two key monomers 833 being intervally installed and use In the interconnecting piece 834 of connection key monomer 833.Wherein, multiple key monomers 833 and interconnecting piece 834 can be integrally formed.It is corresponding Ground, each key monomer 833 are correspondingly arranged on a key contact 832, and correspond to a key hole 342 and one in turn and press Key switch 611.

That is, multiple key monomers 833 can be set corresponding to first depressed area 341 in present embodiment, User can trigger different key switches 611 by pressing different key monomers 833, and realize multiple functions in turn.

Further, the settable elastic projection 822 for being used to support interconnecting piece 834 on elastic backing 82.Due to key 83 Multiple key monomers 833 including connection setting, the setting of elastic projection 822 is so that user is pressing one of key monomer When 833, the key monomer 833 is enabled to individually to be pressed, and avoid passing through linkage and by other key monomers 833 The case where pressing together must trigger corresponding key switch 611 so as to accurate.It is noted that the elastic projection 822 are not necessary, such as are also possible to the projective structure without elasticity, or can also be not provided with projective structure, have Body can be configured according to the actual situation.

In one embodiment, groove 174 corresponding with key is provided on the inner wall of shell sheath 17, so as to Suit mode is coated on the periphery of circuit shell 30 and key.

In one embodiment, osteoacusis loudspeaker arrangement further comprises at least one conductive column 85, is contained in electricity Control circuit 60 inside road shell 30 further includes main control board 62, which can be used for connecting inside circuit shell 30 Main control board 62 and circuit shell 30 outside charging circuit and/or data transmission link etc., to osteoacusis loudspeaking Device carries out charging and/or data transmission etc..

Correspondingly, at least one mounting hole 331 is set in the major side wall 33 of circuit shell 30, and conductive column 85 can be inserted in pair In the mounting hole 331 answered.Wherein, conductive column 85 and mounting hole 331 can correspond, in present embodiment, conductive column 85 and peace The quantity for filling hole 331 is four, and four conductive columns 85 are inserted in respectively in corresponding mounting hole 331, is side by side in straight line And uniform intervals are arranged.Wherein, two conductive columns 85 positioned at outside can be used as charging interface, and be located in the middle two conductions Column 85 can be used as data transmission interface.Certainly, conductive column 85 and mounting hole 331 can also be carried out according to other arrangement modes Setting, is not specifically limited herein.

Wherein, conductive column 85 may include the cylindrical body 851 being inserted in mounting hole 331.Wherein cylindrical body 851 is outer Positioning convex platform 852 is provided on circumferential surface, which can be used for being clamped with the inner surface of major side wall 33, and then will be conductive Column 85 is fixed on mounting hole 331.

Specifically, positioning convex platform 852 can be arranged in a ring around the circumferential direction of cylindrical body 851, further, in annular Positioning convex platform 852 is provided with connection 851 outer peripheral surface of cylindrical body and positioning convex platform 852 towards the side inside circuit shell 30 Extension inclined-plane 853.When installing conductive column 85, by the conductive column 85 by the outside of circuit shell 30, along extending inclined-plane 853 It is gradually inserted the inside of mounting hole 331 and entrance circuit shell 30, and in turn by positioning convex platform 852, it is complete in positioning convex platform 852 After mounting hole 331, inner surface card of the positioning convex platform 852 towards table top and major side wall 33 outside circuit shell 30 It connects, and then conductive column 85 is fixed in mounting hole 331.

In aforesaid way, so that in assembling process, conductive column 85 can be from circuit shell 30 for the setting of positioning convex platform 852 Major side wall 33 outer surface insertion mounting hole 331 after, and positioning convex platform 852 can be pressed into peace

by way of pressing It fills in hole 331, to be connected and fixed with the inner surface of the major side wall 33 of circuit shell 30, without from the inside of circuit shell 30 It is installed, so that the assembly of osteoacusis loudspeaker arrangement is more convenient, improves production assembly efficiency further, extend So that in assembling process, positioning convex platform 852 can more be smoothly through mounting hole 331 for the setting on inclined-plane 853.Positioning convex platform 852 setting then enables to conductive column 85 to be clamped when entering in mounting hole 331 with the inner surface of major side wall 33 and is not easy from leading It is marked in electric hole, so as to which conductive column 85 to be stably attached in mounting hole 331.

Specifically, in one embodiment, insertion side of the cylindrical body 851 along cylindrical body 851 relative to mounting hole 331 To being divided into the first cylindrical body 8511 and the second cylindrical body 8512, the two can by conductive metal material, as copper, silver or Alloy etc. is integrally formed and is integral structure.Wherein, it is being inserted into the direction of insertion of mounting hole 331 perpendicular to conductive column 85, The cross section of first cylindrical body 8511 can be greater than the cross section of the second cylindrical body 8512.Wherein, positioning convex platform 852 is settable In in the second cylindrical body 8512.

Correspondingly, mounting hole 331 is divided into cross section and the first cylindrical body 851 and the second cylindrical body along direction of insertion 851 corresponding first hole sections 3311 and the second hole section 3312, and then in the junction of the first hole section 3311 and the second hole section 3312 Form a circular table 3313, wherein the circular table 3313 is connected to the outer surface of major side wall 33.

Further, when cylindrical body 851 is inserted in mounting hole 331, the first cylindrical body 8511 is towards the second column The side of shape ontology 8512 is supported on circular table 3313, meanwhile, the positioning on 8512 outer peripheral surface of the second cylindrical body The side of boss 852 towards the first cylindrical body 8511 is connected on the inner surface of major side wall 33, and then by conductive column 85 from peace Face is clamped simultaneously inside and outside major side wall 33 around dress hole 331, so that conductive column 85 is fixed in mounting hole 331.

In one embodiment, cylindrical body 851 is axially disposed an accommodating cavity 8513, the open end of accommodating cavity 8513 in Second cylindrical body 8512 is towards on the end face inside circuit shell 30.Specifically, which can be inserted into along being parallel to Direction and penetrate through to the part positioned at 30 interior side of circuit shell of the second cylindrical body 8512, and reach positioning convex platform It is terminated before 852.Certainly, in other embodiment, the specific location of accommodating

cavity 8513 can be set according to demand, herein Without limitation.

Further, conductive column 85 includes the spring 854 and conductive contact 855 being set in accommodating cavity 8513, conductive One end of contact 855 can be abutted in 8513 inside of accommodating cavity with spring 854, and the other end is exposed to from the open end of accommodating cavity 8513 The inside of circuit shell 30.Wherein, the material of conductive contact 855 can be identical as the material of cylindrical body 851, and spring 854 can be with it is such as bonded by certain means, welds mode and connect with the second cylindrical body 851 and conductive contact 855, or may be used also To be placed directly in accommodating cavity 8513, and passes through the clamping of cylindrical body 851 and the major side wall 33 of circuit shell 30 and lead The abutting of electrical contact 855 and main control board 62 and resilient clamp are inside accommodating cavity 8513.

Further, contact corresponding with 85 position of conductive column is provided on the main control board 62 inside circuit shell 30 621, it is specific as shown in Figure 7.Specifically, main control board 62 includes the biggish main surface 622 of area and connection main surface 622 The lesser side surface 623 of area, wherein the main surface 622 of main control board 62 can be parallel or be approximately parallel to circuit shell The major side wall 33 of body 30, wherein contact 621 is correspondingly arranged in the main surface 622 of main control board 62.

Wherein, the direction of insertion of the insertion of conductive column 85 mounting hole 331 is axial parallel with conductive column 85, and perpendicular to main side Wall 33, and then perpendicular to the main surface of main control board 62 622.After conductive column 85 is installed in mounting hole 331, spring 854 by conductive contact 855 and cylindrical body 851 clamping and generate elastic deformation, the elasticity of conductive contact 855 is pressed in on corresponding contact 621, to realize being electrically connected for conductive column 85 and main control board 62.

In one embodiment, osteoacusis loudspeaker arrangement still further comprises an auxiliary piece being located inside circuit shell 30 86。

The auxiliary piece 86 includes a plate body 861, is provided with vacancy section 8611 on the plate body 861, which can pass through heat The modes such as molten or hot pressing, bonding are set on the inner surface of major side wall 33, and make the mounting hole being set in major side wall 33 331 are located inside vacancy section 8611.Specifically, the plate face of plate body 861 can be posted by parallel on the inner surface of major side wall 33.

Wherein, the auxiliary piece 86 have certain thickness, on the inner surface that it is set to major side wall 33 after, with the auxiliary The inner sidewall and major side wall 33

of the vacancy section 8611 of piece 86 collectively form one and are located at outside the conductive column 85 being inserted in mounting hole 331 The glue groove 87 enclosed.

Further, sealant can be applied in glue groove 87, to carry out from the inside of circuit shell 30 to mounting hole 331 Sealing to improve the airtightness of circuit shell 30, and then improves the waterproof performance of osteoacusis loudspeaker arrangement.

Wherein, the material of the auxiliary piece 86 can be identical as the material of circuit shell 30, and is separately formed with circuit shell 30. It should be pointed out that mounting hole 331 nearby has other structures toward contact, such as needs into 30 formative stage of circuit shell Type key hole 342 etc., corresponding mold may need the inside from circuit shell 30 to exit to these structures at the time of molding, and this If when directly inside circuit shell 30 be integrally formed correspond to mounting hole 331 glue groove 87, the protrusion of glue groove 87 may Interfere smoothly exiting for the mold of these structures, to make troubles for production.In present embodiment, auxiliary piece 86 and circuit shell Body 30 is independent structure respectively, can be by the way that auxiliary piece 86 to be installed on to the inside of circuit shell 30 after the two is separately formed And glue groove 87 is collectively formed with the major side wall of circuit shell 30 33, so that the formative stage in circuit shell 30 will not stop portions The mold of structure is exited from the inside of circuit shell 30, to be conducive to going on smoothly for production.

In one embodiment, when forming to circuit shell 30, exiting for mold is only taken up occupied by glue groove 87 Space segment space, it is thus possible to be integrally formed glue on the inner surface of major side wall 33 in the case where not influencing to move back mould A part of slot 87, and another part of glue groove 87 still can be assisted constituting by auxiliary piece 86.

Specifically, integrally formed with the first strip fin 332, the first strip fin 332 on the inner surface of major side wall 33 The mold that the position at place does not influence circuit shell 30 moves back mould.The vacancy section 8611 of auxiliary piece 86 is provided with a notch 8612.Its In, the first strip fin 332 is corresponding with the notch 8612.It, can should after circuit shell 30 and auxiliary piece 86 are separately formed Auxiliary piece 86 is in the inner surface of major side wall 33, so that the first strip fin 332 is at least partly embedded at notch 8612, in turn Cooperated using the first strip fin 332 and auxiliary piece 86 so that glue groove 87 is in closure setting.

In present embodiment, since the first strip fin 332 will not exit generation blocking to mold, glue groove 87 Side wall can be collectively formed by the first strip fin 332 for being shaped in 33 inner surface of major side wall with auxiliary piece 86.

Further, in one embodiment, the first strip fin 332 also further extends into the side with plate body 861 Edge 8613 abuts, and then positions to plate body 861.

Specifically, which includes fin main body 3321 and registration arm 3322, wherein fin main body 3321 for the notch 8612 of vacancy section 8611 matching and chimeric with its, so that the side wall of glue groove 87 be collectively formed ; And it positions Arm 3322 is then further extended by one end of fin main body 3321, and extend at the one side edge 8613 of plate body 861 with The side edge 8613 abuts, to position at the side edge 8613 to the plate body 861.

Wherein, the first strip fin 332 can be greater than the thickness of auxiliary piece 86 in the height that the inner surface of major side wall 33 protrudes above Degree, it is of course also possible to be less than or equal to, as long as glue groove 87 can be collectively formed with auxiliary piece 86, and can be to auxiliary piece 86 plate body 861 plays positioning action, is not specifically limited herein.

In one embodiment, location hole 8614 is further provided on plate body 861, wherein 8614 run-through board of location hole The mainboard face of body 861 is arranged.Further, integrally formed with positioning corresponding with location hole 8614 on the inner surface of major side wall 33 Column 333, after the inner surface of major side wall 33 is arranged in auxiliary piece 86, which is inserted in location hole 8614, thus Further auxiliary piece is positioned.

Wherein, location hole 8614 is consistent with the quantity of positioning column 333, and in present embodiment, the quantity of the two is two.

In an application scenarios, the side edge 8613 of plate body 861 is formed at least two lugs 8615, two location holes 8614 can be respectively arranged on corresponding lug 8615.

Further, integrally formed with one second strip fin 334, the second strip fin on the inner surface of major side wall 33 334 can be extended along towards the direction of auxiliary sidewall 34, and can be with the extending direction of the registration arm 3322 of the first strip fin 332 It is orthogonal.

Accordingly, strip locating slot 8616 corresponding with the second strip fin 334, the positioning are additionally provided on plate body 861 Slot 8616 is recessed setting along the direction far from the major side wall 33, and one end is connect and can be with the side edge 8613 of plate body 861 The side edge 8613 is vertically arranged.

In an application scenarios, locating slot 8616 can be only by the surface indentation shape of the fitting major side wall 33 of plate body 861 At the depth of locating slot 8615 is less than the thickness of plate body 861, at this point, the face of plate body 861 being arranged with the surface opposite of recess is not It is influenced by locating slot

8616 : In another application scenarios, the depth of locating slot 8616 is greater than the depth of plate body 861, thus So that another apparent surface is towards the direction of recess protrusion, to match in the surface indentation of the close major side wall 33 of plate body 861 Conjunction forms locating slot 8616.

Specifically, after the inner surface of major side wall 33 is arranged in auxiliary piece 86, the second strip fin 334 is embedded in strip in locating slot 8616, further to be positioned to plate body 861.

In one embodiment, button circuit board 61 perpendicular to main control board 62 the auxiliary sidewall 34 with circuit shell 30 Parallel interval setting.Specifically, as described above, auxiliary sidewall 34 corresponding to press button mechanism may include two kinds, one is in user When wearing the osteoacusis loudspeaker arrangement, towards user's head on rear side of auxiliary sidewall 34, another kind be user wear when towards use The auxiliary sidewall 34 of account subordinate side.In present embodiment, button circuit board 61 can be two, and auxiliary with corresponding two kinds respectively The setting of sidewall 34 parallel interval.

Wherein, button circuit board 61 may be disposed at the side towards auxiliary sidewall 34 of the plate body 861 of auxiliary piece 86.Further Ground, auxiliary piece 86 include the pressure holding foot 862 relative to the protrusion setting of plate body 861.Specifically, pressure holding foot 862 is along perpendicular to plate body The direction protrusion of 861 main surface is set at the side edge towards auxiliary sidewall 34 of plate body 861, and presses the quantity of foot 862 It can be one or more.In present embodiment, pressure holding foot 862 can be electric by key towards the side of auxiliary sidewall 34 by it The pressure holding of road plate 61 is on the inner surface of auxiliary sidewall 34, to play fixed effect to button circuit board 61.

In one embodiment, main control board 62 and the interval of major side wall 33 are arranged, and the master of the plate body 861 of auxiliary piece 86 Surface is parallel with major side wall 33 and is further spaced and is arranged with main control board 62.

Wherein, pressure holding foot 862 is specifically by plate body 861 along the major side wall 33 away from the close circuit shell 30 of auxiliary piece 86 And it is protruded towards the direction of main control board 62, and extend at the plate face of main control board 62 to be played to main control board 62 Chip hold down at least partly presses on foot 862 so that main control board 62 is supported in.

In one embodiment, exposed hole 175 corresponding with the conductive column 85 is provided on shell sheath 17, by shell After body sheath 17 is sleeved on 30 periphery of circuit shell, it is outer that one end that conductive column 85 is located at outside circuit shell 30 further passes

through this Reveal hole 175 it is exposed, and then with the circuit connection outside osteoacusis loudspeaker arrangement so that the osteoacusis loudspeaker arrangement passes through conduction Column carries out electricity supply or data transmission.

Further, the outer surface depressions of circuit shell 30 are provided with the glue groove 39 around multiple mounting holes 331.Specifically Ground, glue groove 39 can be oval ring, and multiple mounting holes 331 are respectively arranged at the circular circuit shell of glue groove 39 of oval ring On 30.

In present embodiment, sealant is applied in the glue groove 39, and then shell sheath 17 has been assembled with circuit shell 30 Cheng Hou, shell sheath 17 can be tightly connected in the periphery of mounting hole 331 with circuit shell 30 by the sealant, to avoid When outside liquid enters 17 inside of shell sheath by exposed hole 175, shell sheath 17 generates cunning in 30 periphery of circuit shell It is dynamic, and further mounting hole 331 can be sealed from the outside of circuit shell 30, to further increase circuit shell 30 Airtightness, and then further increase the waterproof performance of osteoacusis loudspeaker arrangement.

In one embodiment, circuit shell 30 is further provided in one end far from ear-hang 10 and patches end 3a, rear to hang 40 include elastic metallic yarn 41 and are set to the both ends of elastic metallic yarn 41 and patch end 42, wherein patching end 3a and patching end 42 patch fixation each other.

Wherein, since the earphone core 50 of osteoacusis loudspeaker arrangement is respectively left and right two, corresponding machine core shell 20, ear-hang 10 and circuit shell 30 be also configured as left and right two, it is rear to hang 40 by patching fixed mode with two circuit shells 30 respectively The machine core shell 20, ear-hang 10 and the circuit shell 30 that are located at two sides are linked together, and the suspension setting when user wears On rear side of user's head.

Specifically, material with performance of elastic metallic yarn 41 etc. can be identical as elastic metallic yarn 11, related detailed content The aforementioned associated description to elastic metallic yarn 11 is referred to, details are not described herein again.

Patch the both ends that end 42 can be formed in elastic metallic yarn 41 by way of injection molding.Specifically, patching end 42 can To be made of materials such as plastic cement.

In one embodiment, it patches end 42 and is provided with jointing holes 421, this patches end 3a and is at least partially inserted into jointing holes In 421, in present embodiment, the side that circular table 37 deviates from ear-hang 10 can be specifically located at by patching end 3a.Patch end 3a with Plugging mode between jointing

holes 421 and the plugging mode patched between end 15 and jointing holes 31 may be the same or different.

Wherein, insertion side of the end 3a relative to jointing holes 421 is respectively arranged with and patched in the opposite sides for patching end 3a To vertically disposed fluting 3a1.Two fluting 3a1 can be spaced and be symmetrically disposed on the two sides for patching end 3a.Further, this two A fluting 3a1 can be connected in the corresponding side wall for being perpendicularly to the insertion direction with patching end 3a.

Correspondingly, it patches and is provided with through-hole 423 corresponding with two fluting positions 3a1 on the first side wall 422 at end 42 Its In, patching end 42 includes the side wall around setting for defining jointing holes 421, and the first side wall 422 for patching end 42 can be Patch end 3a and patch end 42 patch fixed when, patch end 42 can be with the side wall that intersect of extending direction of fluting 3a1.

Wherein, osteoacusis loudspeaker arrangement further comprises fixing piece 88, and fixing piece 88 includes two pins disposed in parallel 881 and the interconnecting piece 882 for connecting pin 881.In present embodiment, two pins 881 are arranged in parallel, and interconnecting piece 882 can It is vertically connected in the same side of two pins 881, to form U-shaped fixing piece 88 similar with 81 shape of fixing piece.

It should be pointed out that fixing piece 88 can be similar to the shape of fixing piece 81, but specific dimensional parameters can fit Should be different in peripheral structure, in present embodiment, the length of pin 881 is greater than the length of pin 811,812 length of interconnecting piece Less than the length etc. of interconnecting piece 882, it is not specifically limited herein.

Further, pin 881 can be inserted into fluting 3a1 from the outside via through holes 423 for patching end 42, and by interconnecting piece 882 are barred from the outside for patching end 3a, and then realize to patch end 42 and patch and hold 3a's to patch fixation.

By the above-mentioned means, the fixing piece 88 of osteoacusis loudspeaker arrangement includes two pins 881 disposed in parallel and is used for The interconnecting piece 882 of pin 881 is connected, is patched so that fixing piece 88 docks spigot 3a in certain span and patches end 42 It is fixed, so that circuit shell 30 and the rear fixation hung between 40 are more stable, firm ; And 88 structure of fixing piece is simple, It is inserted and removed from conveniently, is fixed as detachably so that patching end 3a and patching patching between end 42, and enable to bone The assembly for conducting loudspeaker arrangement is more convenient.

Further, in one embodiment, the second sidewall 424 opposite with the first side wall 422 for patching end 42 is

enterprising One step is provided with the through-hole 425 opposite with through-hole 423, and pin 881 is further inserted into through-hole 425 through fluting 3a1.

In the present embodiment, 881 via through holes 423 of pin are inserted into fluting 3a1, and further through fluting 3a1 insertion To through-hole 425, that is to say, that pin 881 can by it is rear hang 40 patch end 42 two lateral walls and patch end 3a it is complete Run through and be connected together, so that being patched between circuit shell 30 and rear extension 40 stronger.

Specifically, in one embodiment, patch end 3a along patch end 3a relative to jointing holes 421 direction of insertion into one Step, which is divided into first and patches section 3a2 and second, patches a section 3a3.

Wherein, patching end 3a may be provided at a close auxiliary sidewall 34 side for end for circuit shell 30, the auxiliary sidewall 34 It specifically can be another auxiliary sidewall 34 opposite with the auxiliary sidewall 34 where the locating piece 38 in above embodiment.

Further, first patch section 3a2 and second patch section 3a3 can close to locating piece 38 a lateral edge patch end 3a Relative to jointing holes 421 direction of insertion and stepped setting so that in the cross-wise direction being perpendicularly to the insertion direction, First section for patching section 3a2 is greater than the second section for patching section 3a3.

Correspondingly, jointing holes 421 are further divided into shape point relative to the direction of insertion of jointing holes 421 along patching end 3a Section 3a2 and second is not patched with first and patches the first hole section 4211 and the second hole section 4212 that section 3a3 matches, so that End 3a is patched when being inserted into jointing holes 421, first, which patches section 3a2 and second, patches section 3a3 and be inserted in the first hole section respectively 4211 and second 4212 in hole section.

Further, fluting 3a1 may be disposed at first and patch on section 3a2, and specifically, fluting 3a1 can be arrived along end 3a is patched The direction of locating piece 38, the i.e. opposite direction of the auxiliary sidewall 34 of the two of circuit shell 30 and be extended, so that perforation first connects The two sidewalls vertical with the major side wall 33 of circuit shell 30 of section 3a2 are inserted, and are further connect through first along being inserted perpendicularly into direction Insert the two sidewalls of the major side wall 33 for being parallel to circuit shell 30 of section 3a2.

Wherein, patching the through-hole 423 being arranged on end 42 can be corresponding with the fluting side towards locating piece 38 of 3a1, and leads to It hole 425 then can be corresponding with fluting remotely located piece 38 of the side of 3a1.

Further, in one embodiment, it first patches section 3a2 and second and patches the top side of section 3a3 and coplanar with each other set It sets.Wherein, the first top side for patching that section 3a2 and second patches section 3a3 refers to when user normally wears osteoacusis loudspeaker arrangement, First patches the side that section 3a2 and second patches the headward top side of section 3a3, namely patches section 3a2 and second with first and connect It inserts section 3a3 and is formed by ladder-like opposite side.

Further, first patch section 3a2 and second patch section 3a3 top side it is coplanar and be formed with for accommodating conducting wire Cabling channel 3a4.Cabling channel 3a4 can extend along the direction that patches for patching end 3a and jointing holes 421, can be used for accommodating passing through and hang later 40 and be connected to the conducting wire of control circuit 60 and battery 70.

In present embodiment, it will can first patch end 3a and be inserted in jointing holes 421, the court for then patching section 3a2 from first Fluting 3a1 is inserted into the side of locating piece 38.Specifically, in present embodiment, the court that end 3a is set to circuit shell 30 is patched Remotely located piece 38 of side of 40 end face is hung backward, therefore, also has one in the side for patching end 3a towards locating piece 38 Fixed space, thus to circuit shell 30 and it is rear hang 40 and carry out grafting installation when, can be by fixing piece 88 from patching end 3a2 Bottom side, i.e., first patch section 3a2 towards the side of locating piece 38 by through-hole 423 is inserted into fluting 3a1 and in turn be inserted into it is logical in hole 425, to realize that circuit shell 30 is hung 40 and be plugged and fixed with rear.It in this way, can be completely hidden by fixing piece 88 It is hidden in circuit shell 30 to be formed by inner space with rear extension 40 without exposed, without occupying additional space.

Further, in one embodiment, rear extension 40 further includes injection molding in elastic metallic yarn 41 and patches outside end 42 The second protection sleeve pipe 43 for enclosing and with the integrally formed end protection cap 44 of the second protection sleeve pipe 43.

Wherein, the material of the second protection sleeve pipe 43 and end protection cap 44 can be with protection sleeve pipe 16 and shell sheath 17 material is identical, such as all can be have the soft material, such as soft silica gel, rubber etc. of certain elasticity.

End protection cap 44 can specifically be formed in the both ends of elastic metallic yarn 41, can be located at elastic metallic yarn 41 two The end 42 that patches at end is shaped in the periphery for patching end 42.

It should be pointed out that shell sheath 17 is only wrapped up by one end towards ear-hang 10 of circuit shell 30 to circuit shell At 30 circular table 37, therefore, the part that 40 are hung after the direction of the circular table 37

of circuit shell 30 then exposes to shell shield The periphery of set 17.Further, in present embodiment, end protection cap 44 and the shape for patching the inner sidewall that end 42 is collectively formed The shape of the shape end exposed with the circuit shell 30 matches, to be further covered in the end of the exposed circuit shell 30 Periphery, and hung after the direction of the end face towards circuit shell 30 of the end protection cap 44 and shell sheath 17 40 end face bullet Property abut, to further provide for sealing.

Further, in one embodiment, the end of the exposed circuit shell 30 of shell sheath 17 be additionally provided with by Keyhole 342 is accordingly provided with key 83, end protection cap 44 covers the key 83, and is provided with and is used in key hole 342 Accommodate the key accommodation groove 441 of key 83.

Specifically, 342 space set of key hole is in patching end 3a towards the side of locating piece 38, and key hole 342 Quantity can be one or more, specifically can be according to the specific structure and electricity of the control circuit 60 inside circuit shell 30 The structure of road shell 30 itself determines, is not specifically limited herein.

The foregoing is merely presently filed embodiments, are not intended to limit the scope of the patents of the application, all to utilize this Equivalent structure or equivalent flow shift made by application specification and accompanying drawing content, it is relevant to be applied directly or indirectly in other Technical field similarly includes in the scope of patent protection of the application.

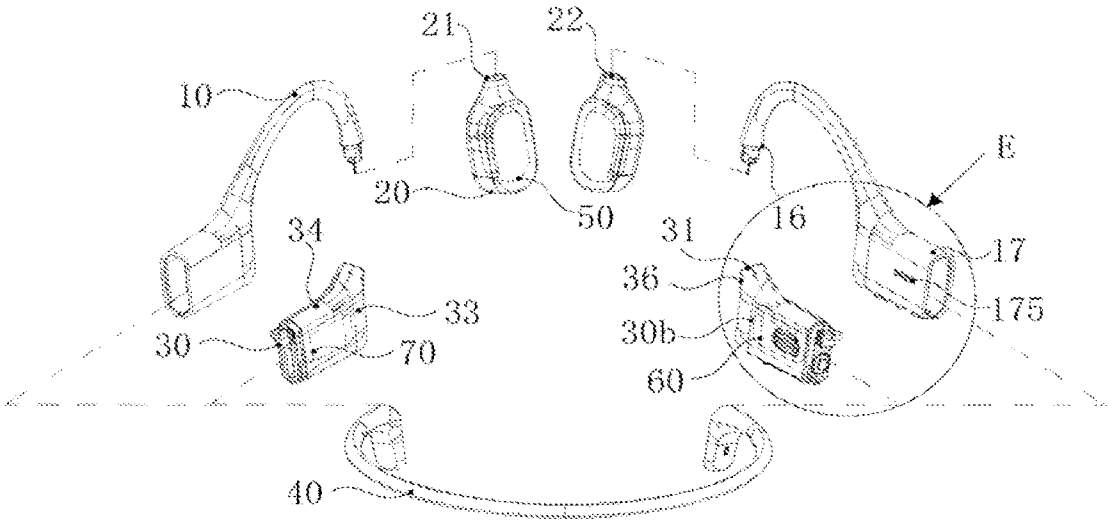


图1

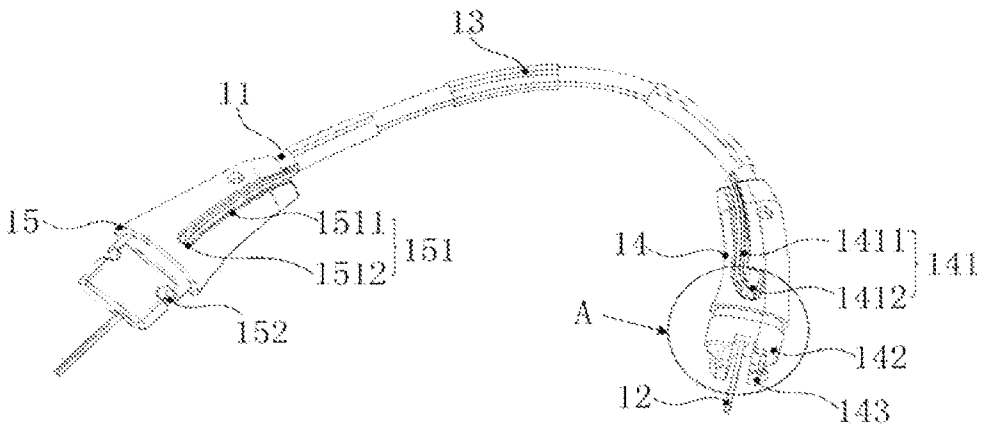


图2

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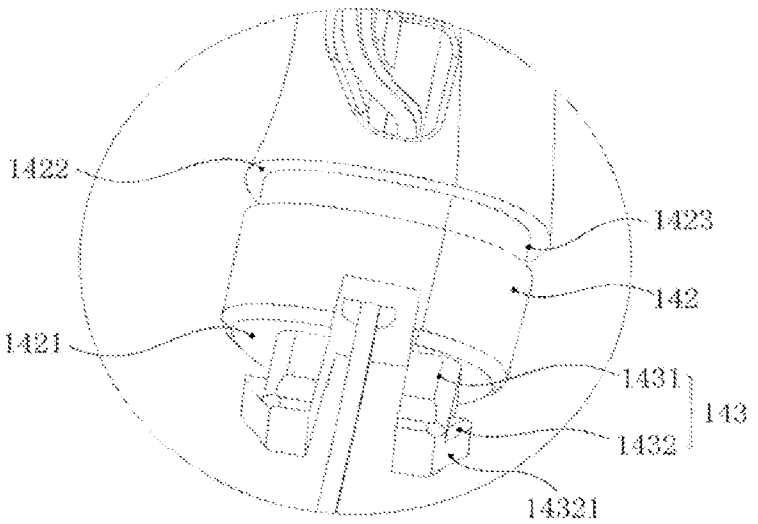


图3

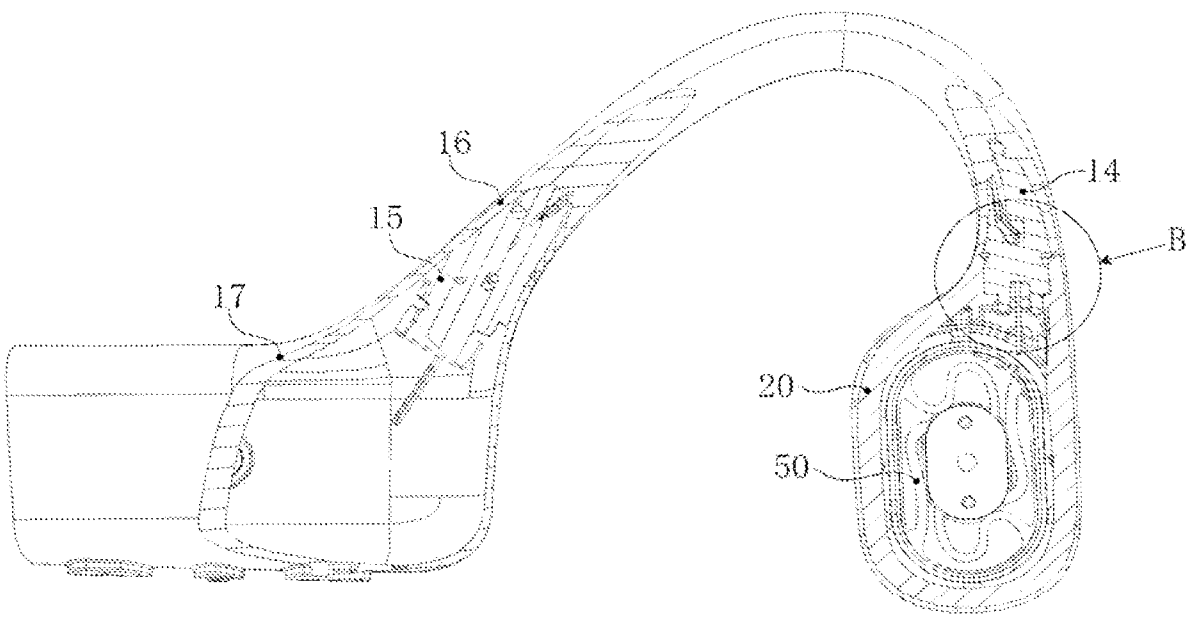


图4

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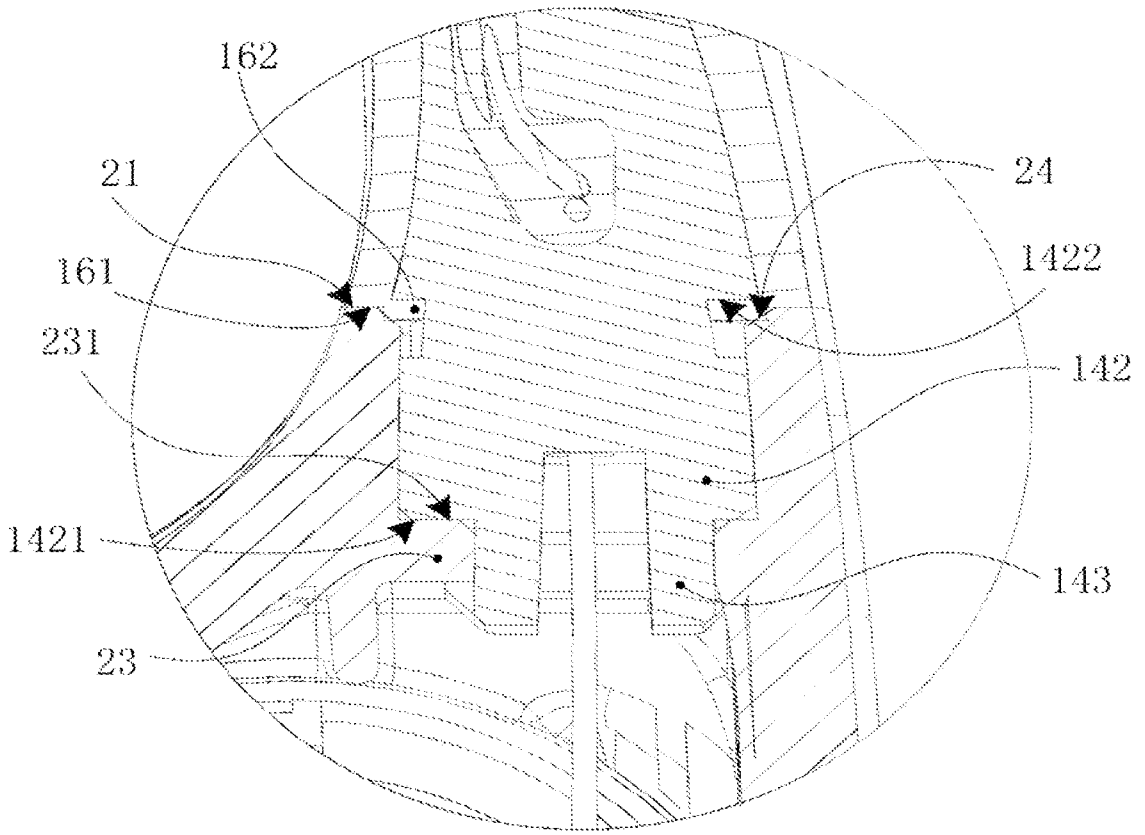


图5

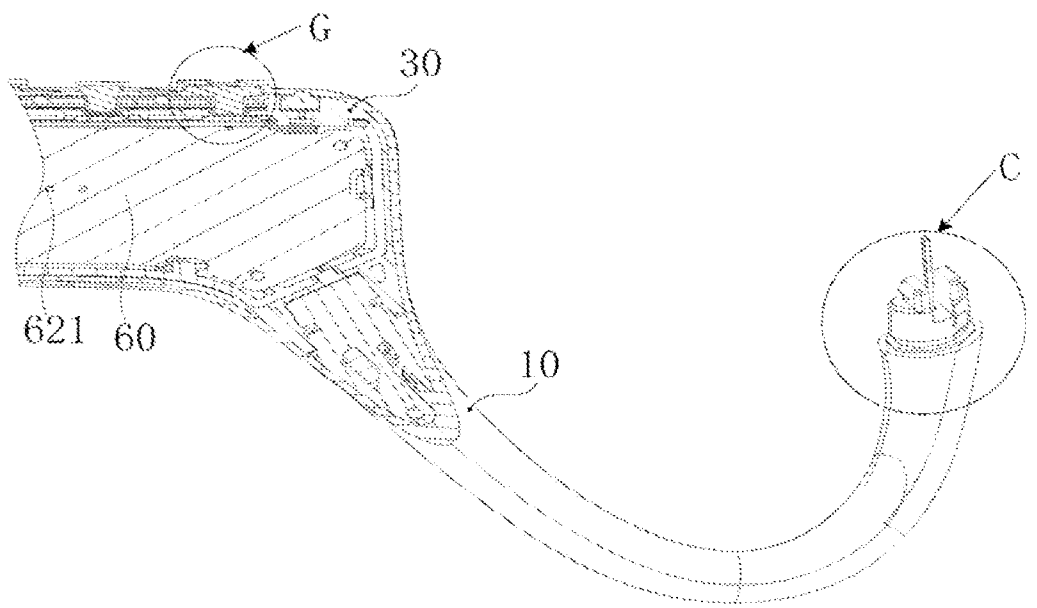


图6

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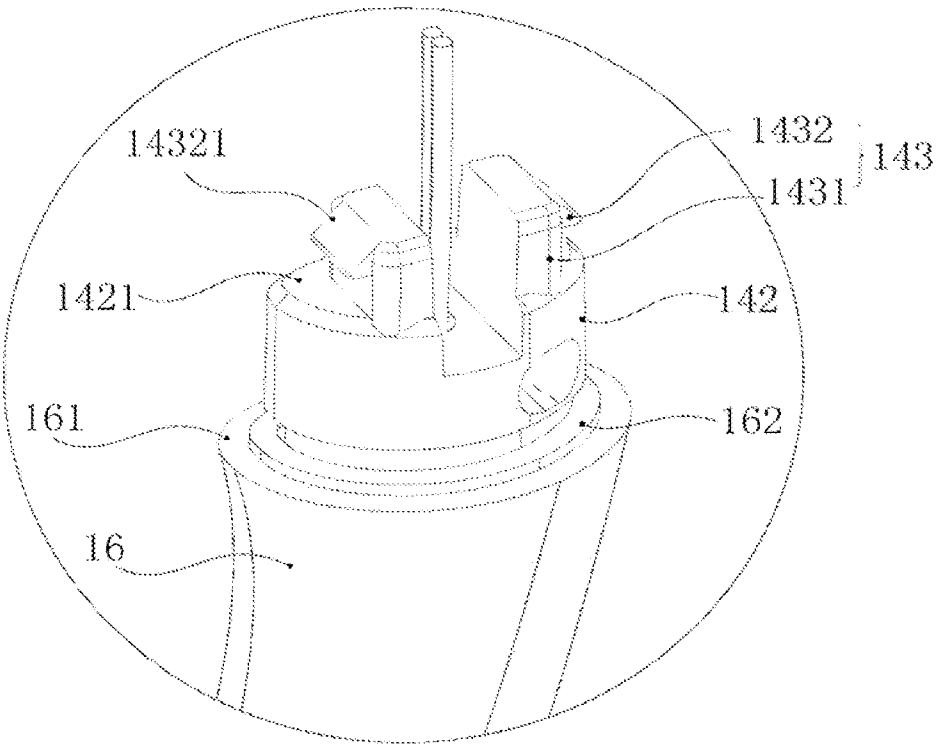


图7

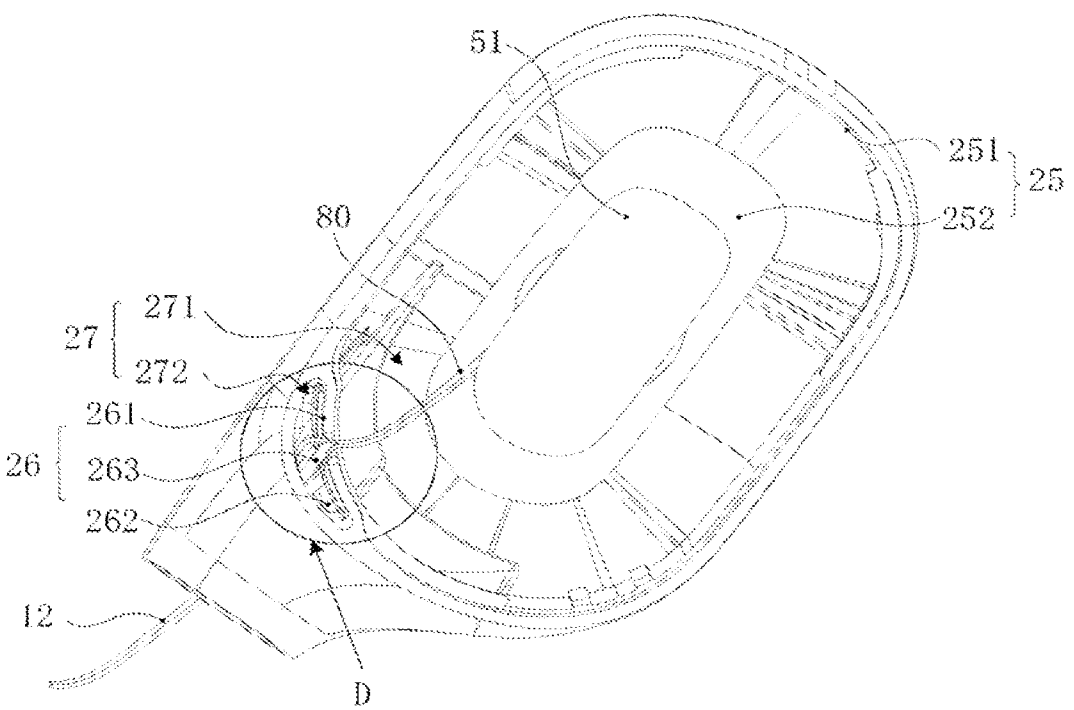


图8

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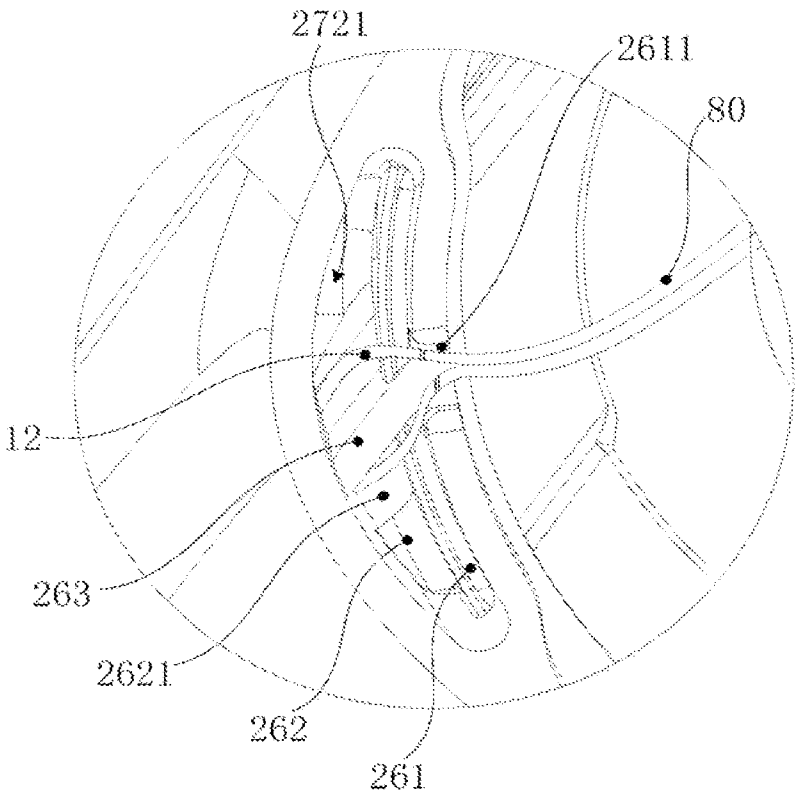


图9

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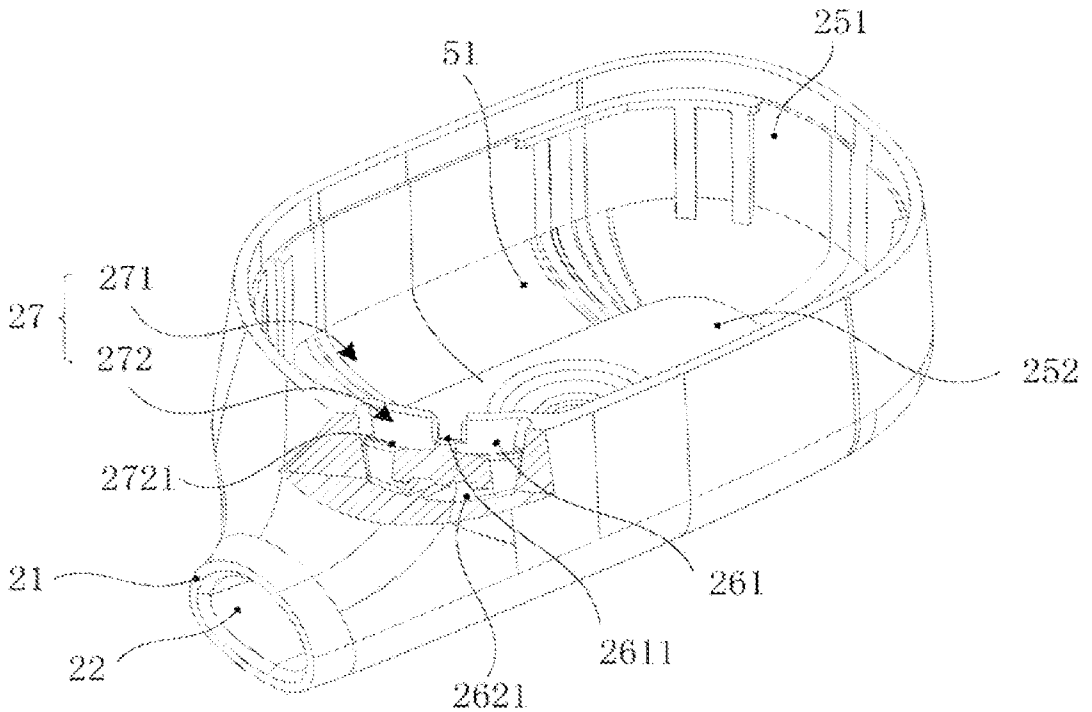


图10

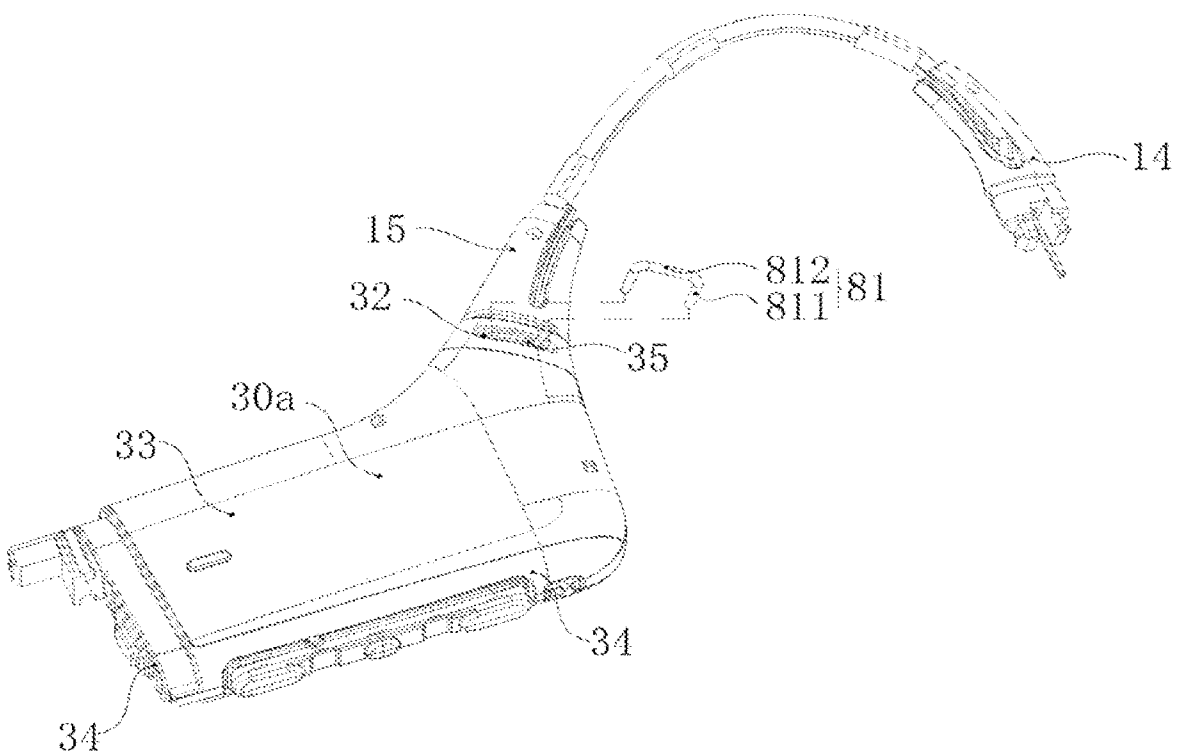


图11

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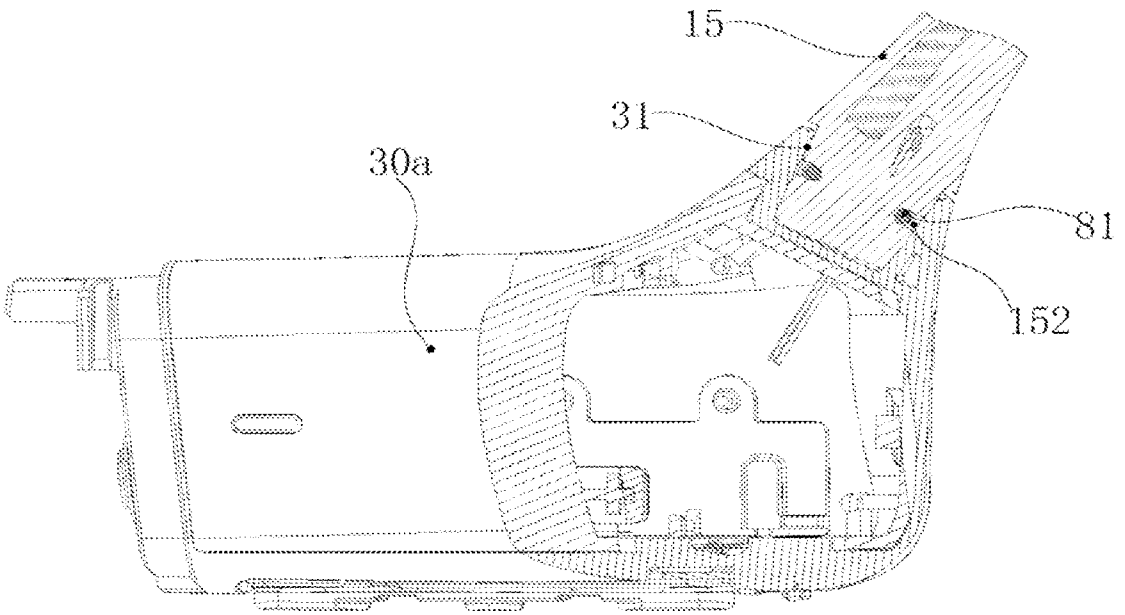


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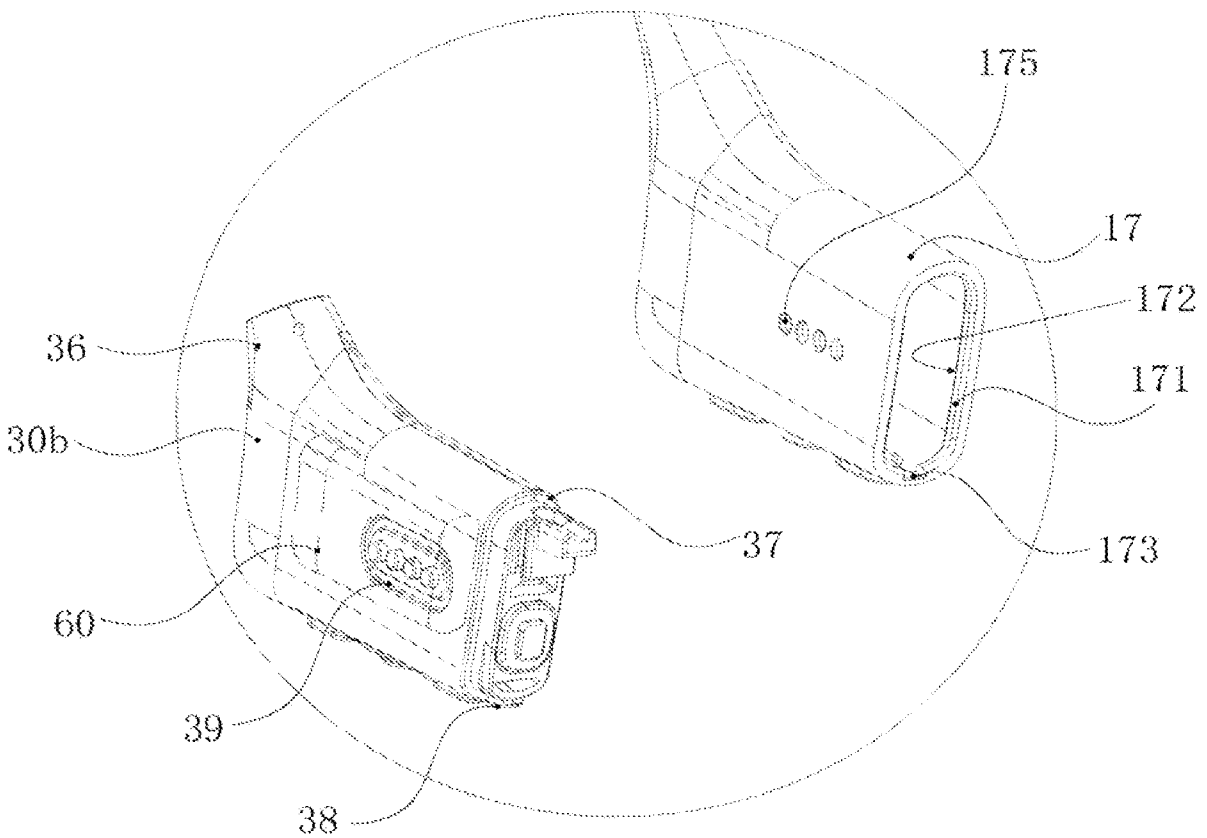


图13

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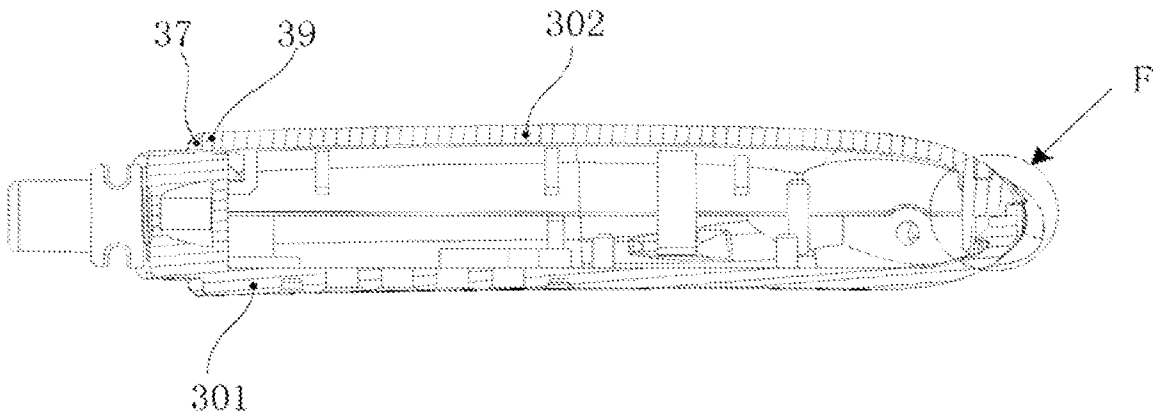


图14

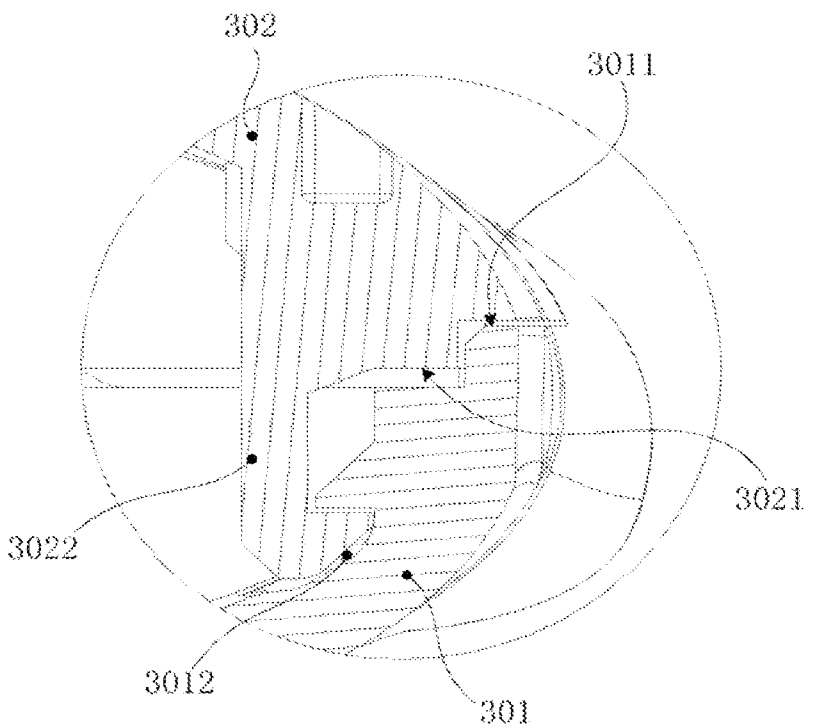


图15

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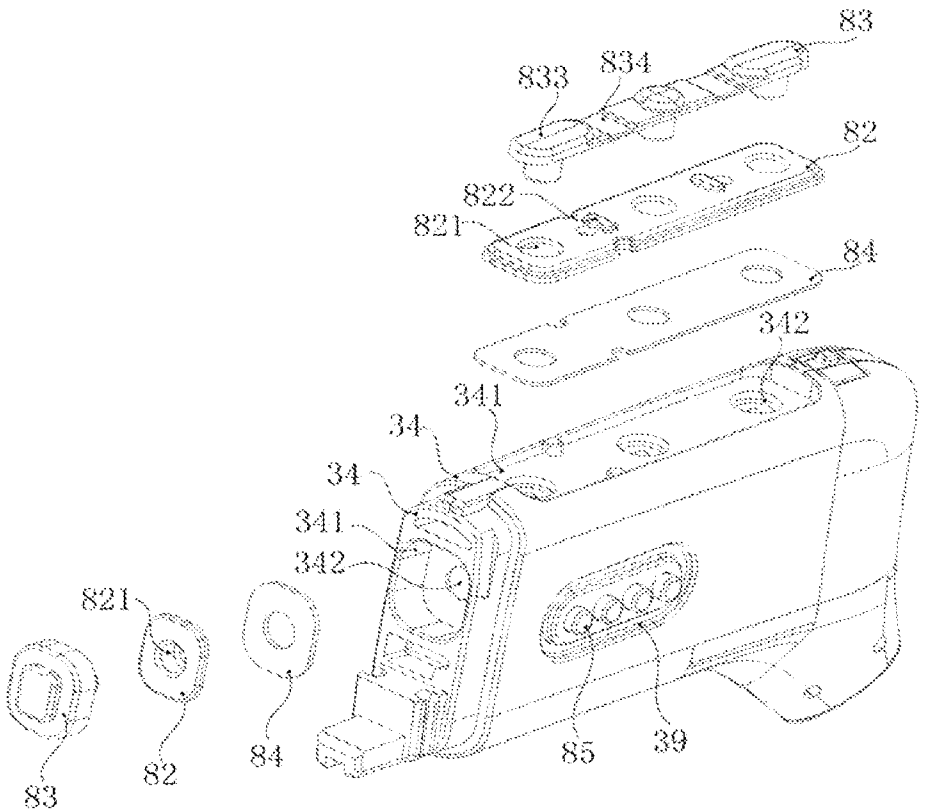


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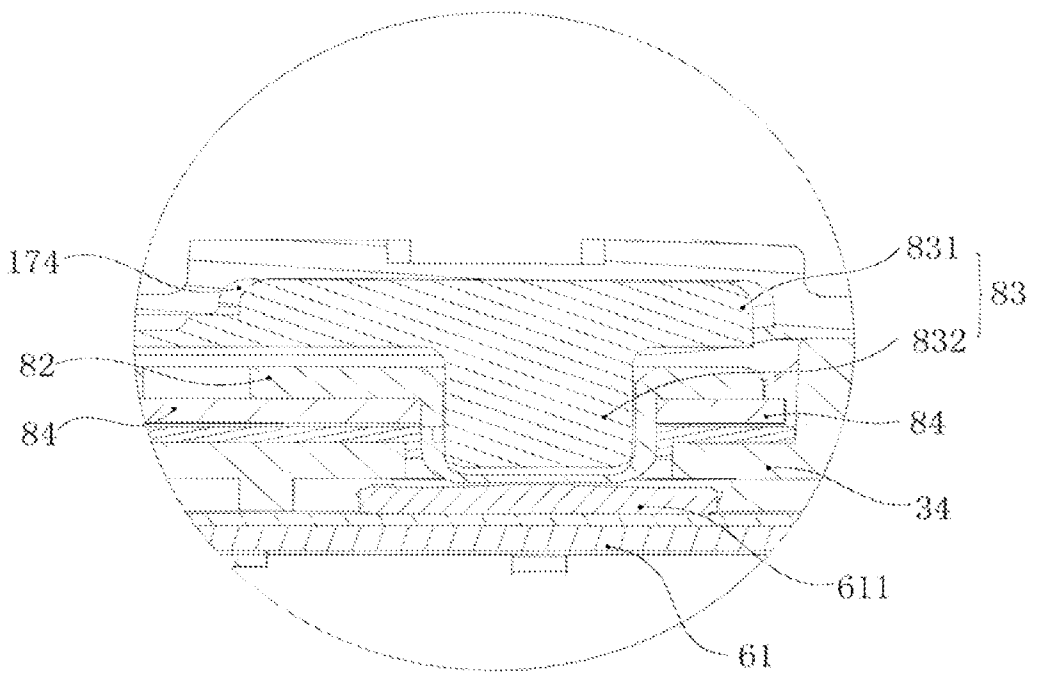


图17

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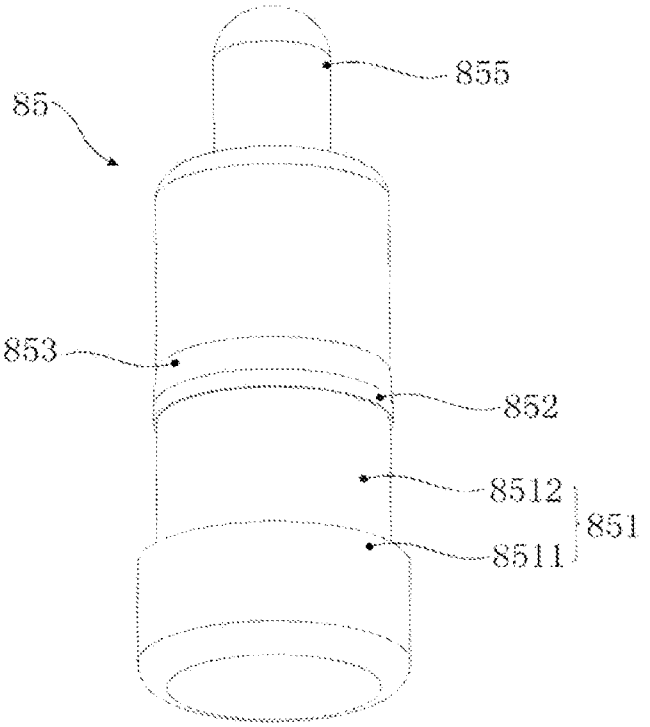


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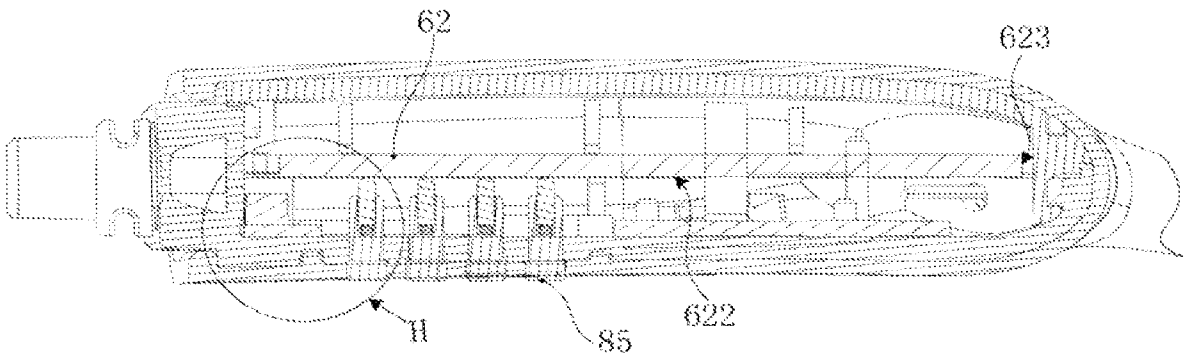


图19

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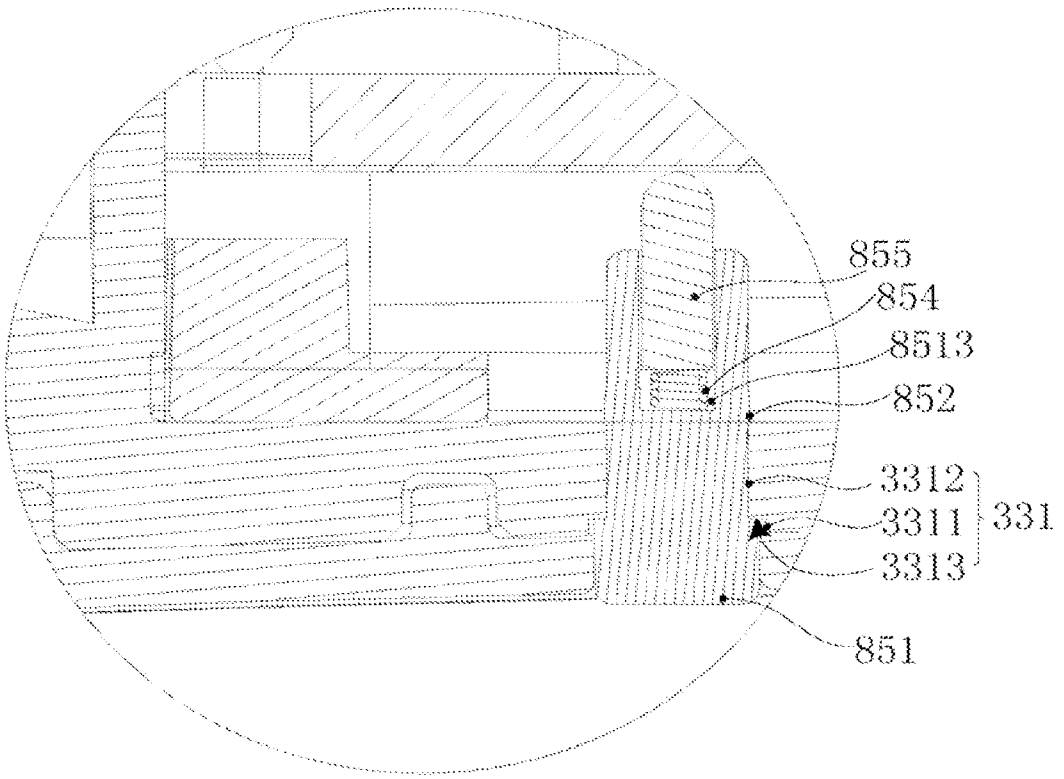


图20

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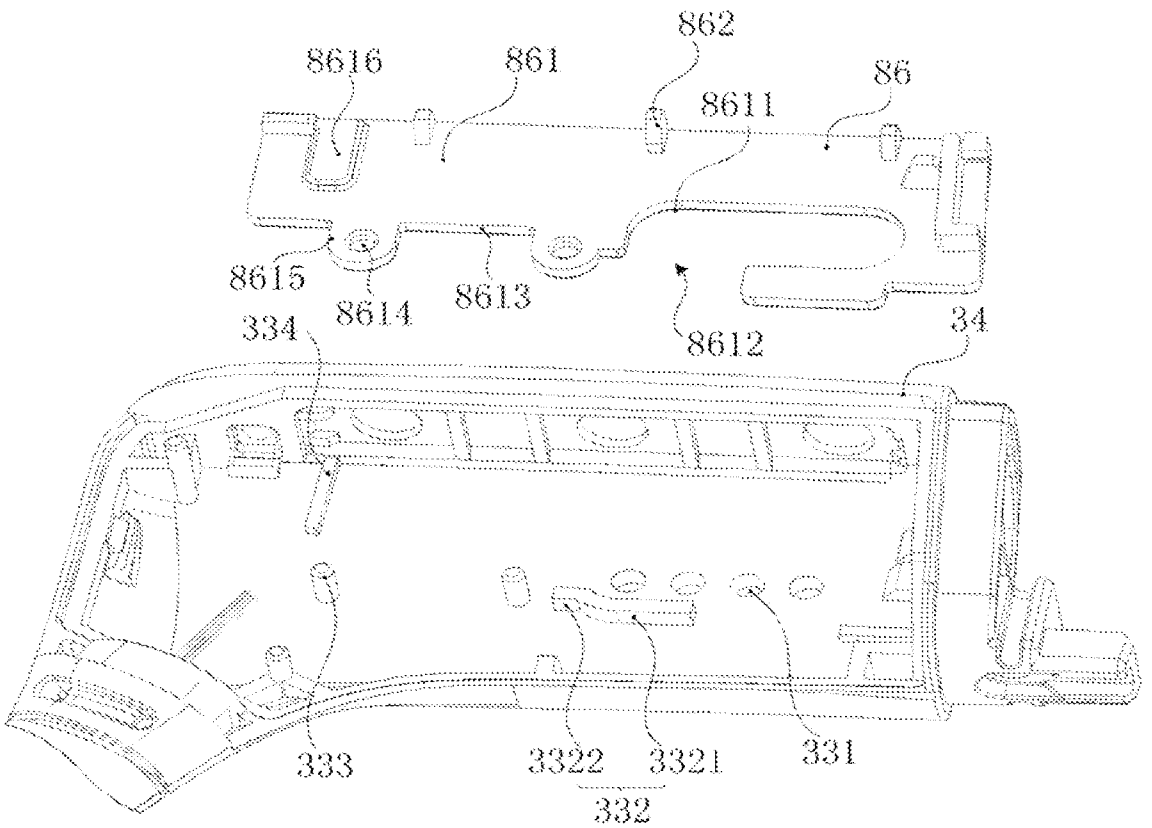


图21

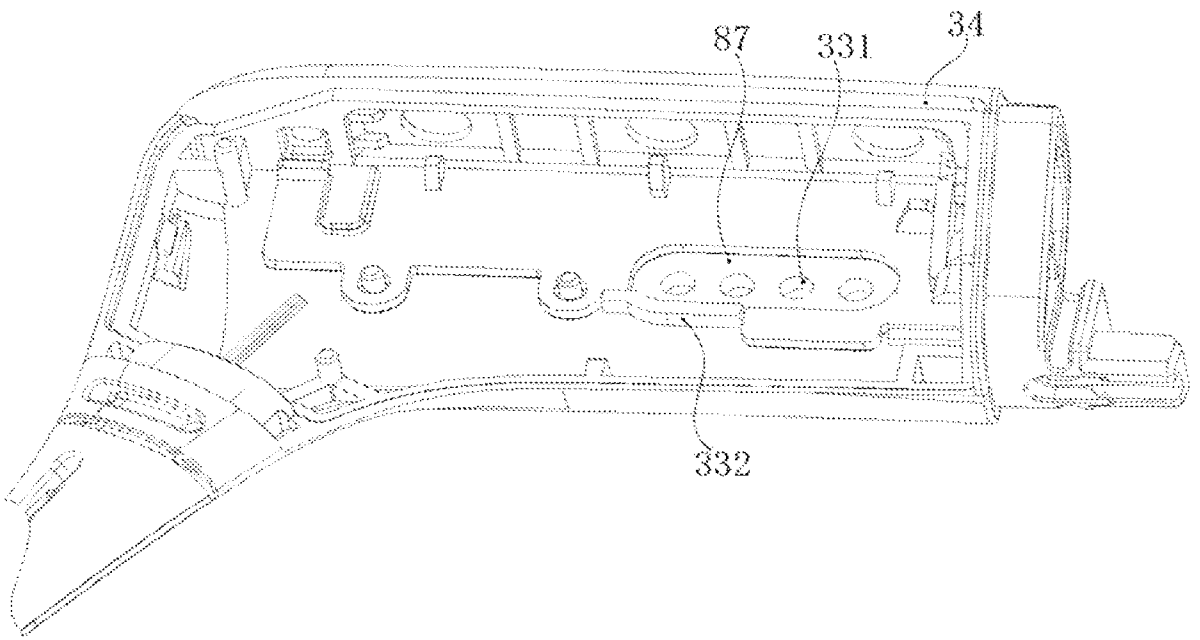


图22

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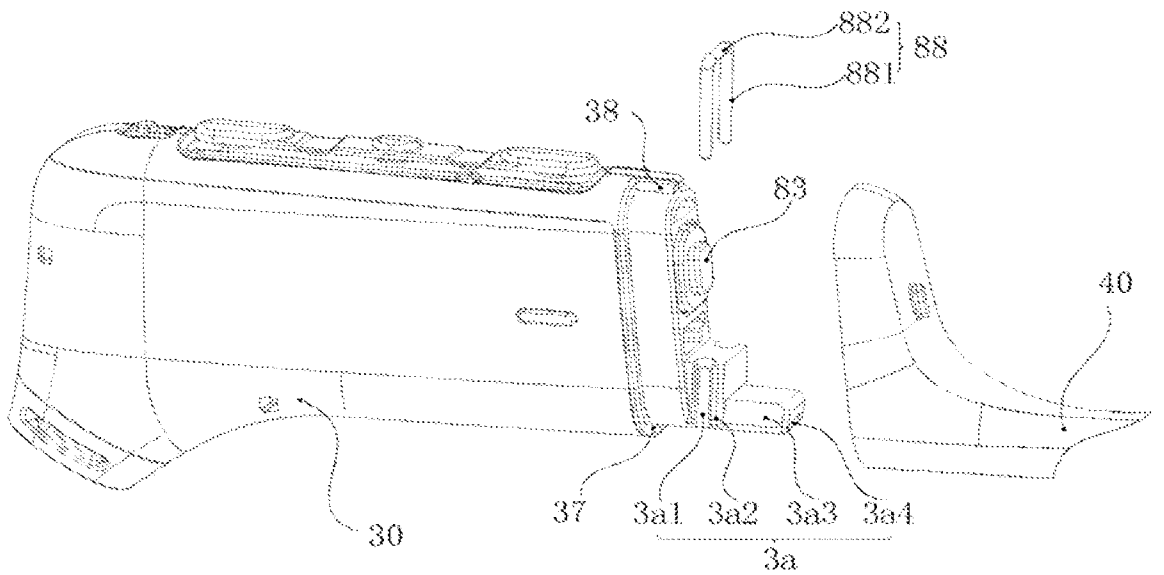


图23

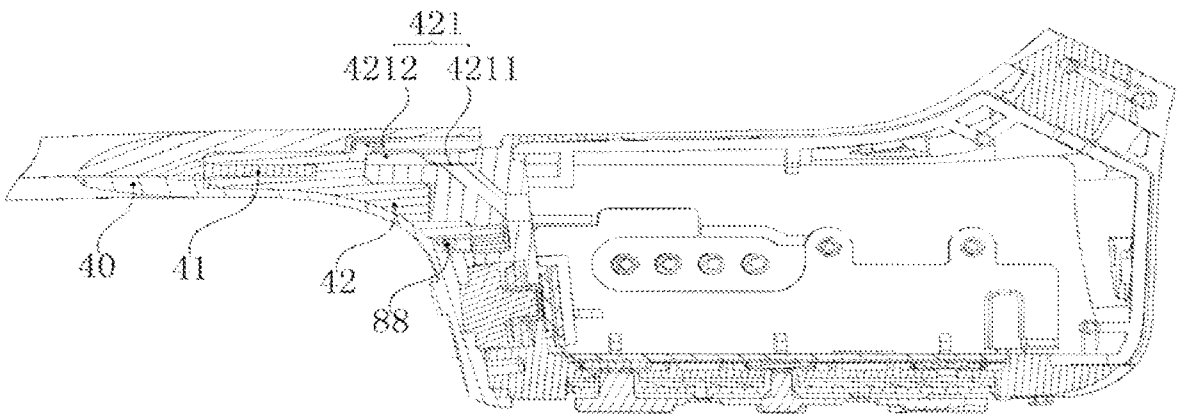


图24

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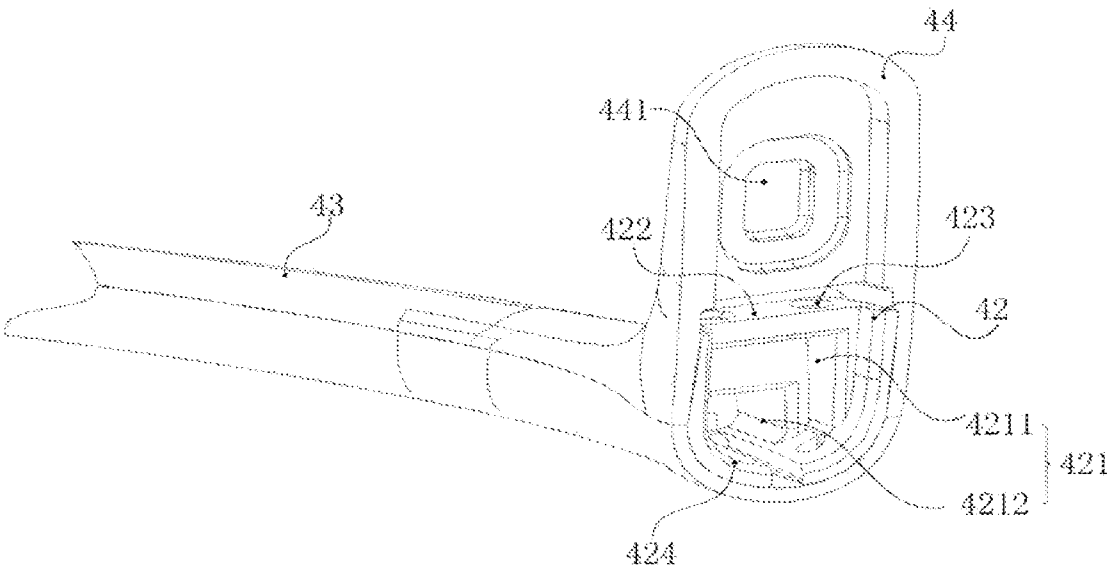


图25

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代理人 李庆波

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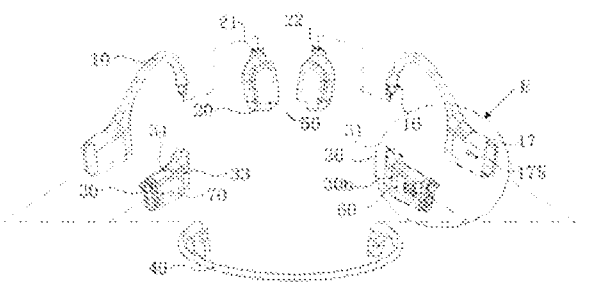
权利要求书2页 说明书19页 附图14页

(54)实用新型名称

骨传导扬声装置

(57)摘要

本申请公开了一种骨传导扬声装置，包括：耳挂及电路壳体；该电路壳体用于容纳控制电路或电池，并与耳挂连接；其中耳挂上注塑有壳体护套，壳体护套以套装方式包覆于电路壳体的外围。通过上述方式，本申请能够减少成型阶段对控制电路或电池所带来的不利影响。



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1.一种骨传导扬声装置，其特征在于，包括：

耳挂；

电路壳体，用于容纳控制电路或电池，并与所述耳挂连接；

其中所述耳挂上注塑有壳体护套，所述壳体护套以套装方式包覆于所述电路壳体的外围。

2.根据权利要求1所述的骨传导扬声装置，其特征在于，所述壳体护套为一端开口的袋状结构，以使得所述电路壳体经由所述壳体护套的开口端进入所述壳体护套的内部。

3.根据权利要求2所述的骨传导扬声装置，其特征在于，所述壳体护套的开口端设置有向内凸出的环状凸缘，所述电路壳体远离所述耳挂的端部呈阶梯状设置，进而形成第一环形台面，当所述壳体护套包覆于所述电路壳体的外围时，所述环状凸缘抵接于所述第一环形台面上。

4.根据权利要求3所述的骨传导扬声装置，其特征在于，在所述环状凸缘与所述第一环形台面的接合区域施加有密封胶，以对所述壳体护套和电路壳体进行密封连接。

5.根据权利要求3所述的骨传导扬声装置，其特征在于，所述第一环形台面上设置有沿所述电路壳体背离所述耳挂的方向延伸的定位块，所述壳体护套的环状凸缘处设置有与所述定位块对应的定位槽，所述定位槽覆盖在至少部分所述定位块的外围，以对所述壳体护套进行定位。

6.根据权利要求3所述的骨传导扬声装置，其特征在于，所述电路壳体包括彼此扣合的两个子壳体，其中所述第一环形台面形成于一个所述子壳体上，所述壳体护套对所述两个子壳体的接合缝进行全覆盖。

7.根据权利要求6所述的骨传导扬声装置，其特征在于，两个所述子壳体彼此对接的接合面为相互契合的阶梯形状。

8.根据权利要求3所述的骨传导扬声装置，其特征在于，所述电路壳体上设置有多个安装孔，并在所述电路壳体的外表面凹陷设置有第一胶槽，所述多个安装孔位于所述第一胶槽内，所述骨传导扬声装置进一步包括分别插置于所述安装孔内的导电柱，所述壳体护套进一步包括允许所述导电柱外露的外露孔，其中在所述第一胶槽内施加有密封胶，以在所述安装孔的外围对所述壳体护套和所述电路壳体进行密封连接。

9.根据权利要求8所述的骨传导扬声装置，其特征在于，所述骨传导扬声装置进一步包括辅助片，所述辅助片包括板体，所述板体上设置有镂空区，其中所述板体设置于所述电路壳体的内表面上，且所述安装孔位于所述镂空区内部，进而在所述导电柱外围形成第二胶槽，其中在所述第二胶槽内施加有密封胶，以在所述电路壳体的内部对所述安装孔进行密封。

10.根据权利要求1所述的骨传导扬声装置，其特征在于，所述骨传导扬声装置进一步包括机芯壳体，所述机芯壳体用于容纳耳机芯，并设置有与所述机芯壳体的外端面连通的接插孔，所述接插孔的内侧壁上设置有止挡块，

所述耳挂包括弹性金属丝以及设置于所述弹性金属丝一端的接插端，所述接插端包括：

插入部，至少部分插入于所述接插孔内并抵接于所述止挡块的外侧面上；

两个弹性卡勾，设置于所述插入部朝向所述机芯壳体内部的一侧，两个弹性卡勾能够

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在外部推力和所述止挡块的作用下彼此并拢，并在经过所述止挡块后弹性回复成卡置于所述止挡块的内侧面上，进而实现所述机芯壳体与所述接插端的接插固定。

11.根据权利要求10所述的骨传导扬声装置，其特征在于，所述插入部部分插入于所述接插孔内，且在所述插入部的外露部分呈阶梯状设置，进而形成与所述机芯壳体的外端面间隔设置的第二环形台面，所述耳挂还包括注塑于所述弹性金属丝以及所述接插端外围的保护套管，所述保护套管进一步延伸至所述第二环形台面朝向所述机芯壳体的外端面的一侧，并在所述机芯壳体与所述接插端接插固定时与所述机芯壳体弹性抵接，进而实现密封。

12.根据权利要求11所述的骨传导扬声装置，其特征在于，所述保护套管在所述第二环形台面朝向所述机芯壳体的外端面的一侧形成一环形抵接面以及位于所述环形抵接面内部且相对于所述环形抵接面凸出设置的环形凸台；

所述机芯壳体进一步包括用于连接所述机芯壳体的外端面和所述接插孔的内侧壁的连接斜面；

其中，在所述机芯壳体与所述接插端接插固定时，所述环形抵接面和所述环形凸台分别与所述机芯壳体的外端面和所述连接斜面弹性抵接。

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骨传导扬声装置

技术领域

[0001] 本申请涉及骨传导技术领域，特别是涉及一种骨传导扬声装置。

背景技术

[0002] 骨传导是一种声音传导方式，骨传导扬声装置利用骨传导技术接收声音，由于其能够开放双耳、不伤害鼓膜等优点而受到广大消费者的青睐。

[0003] 骨传导扬声装置在成型阶段，用于容纳控制电路或电池的电路壳体和设置在电路壳体外围的保护套管可一体成型。然而，由于电路壳体内部容纳有控制电路或电池，若将二者一体成型，则高温环境容易对控制电路或电池带来损伤，从而影响骨传导扬声装置的质量。

实用新型内容

[0004] 本申请主要解决的技术问题是提供一种骨传导扬声装置，能够减少在成型阶段对控制电路或电池所带来的不利影响。

[0005] 为解决上述技术问题，本申请采用的一个技术方案是：提供一种骨传导扬声装置，包括：耳挂；电路壳体，用于容纳控制电路或电池，并与所述耳挂连接；其中所述耳挂上注塑有壳体护套，所述壳体护套以套装方式包覆于所述电路壳体的外围。

[0006] 本申请的有益效果是：区别于现有技术的情况，本申请在骨传导扬声装置的成型和装配阶段，将电路壳体和壳体护套分别成型，然后再套装在一起，从而能够避免二者一体成型时，高温环境对控制电路或电池所带来的损伤，从而减少成型阶段对控制电路或电池所带来的不利影响。

附图说明

[0007] 为了更清楚地说明本申请实施例中的技术方案，下面将对实施例描述中所需要使用的附图作简单地介绍，显而易见地，下面描述中的附图仅仅是本申请的一些实施例，对于本领域普通技术人员来讲，在不付出创造性劳动的前提下，还可以根据这些附图获得其他的附图。其中：

[0008] 图1是本申请骨传导扬声装置一实施方式的爆炸结构示意图；

[0009] 图2是本申请骨传导扬声装置一实施方式中耳挂的部分结构示意图；

[0010] 图3是图2中A部分的局部放大图；

[0011] 图4是本申请骨传导扬声装置一实施方式的局部截面图；

[0012] 图5是图4中B部分的局部放大图；

[0013] 图6是本申请骨传导扬声装置一实施方式的局部结构截面图；

[0014] 图7是图6中C部分的局部放大图；

[0015] 图8是本申请骨传导扬声装置一实施方式的机芯壳体的部分结构示意图；

[0016] 图9是图8中D部分的局部放大图；

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[0017] 图10是本申请骨传导扬声装置一实施方式的机芯壳体的局部截面图；

[0018] 图11是本申请骨传导扬声装置一实施方式中电路壳体与耳挂的部分爆炸图；

[0019] 图12是本申请骨传导扬声装置一实施方式的部分结构的局部截面图；

[0020] 图13是图1中E部分的局部放大图；

[0021] 图14是本申请骨传导扬声装置一实施方式中电路壳体的截面图；

[0022] 图15是图14中F部分的局部放大图；

[0023] 图16是本申请骨传导扬声装置一实施方式中电路壳体与按键结构的爆炸图；

[0024] 图17是图6中G部分的局部放大图；

[0025] 图18是本申请骨传导扬声装置一实施方式中导电柱的结构示意图；

[0026] 图19是本申请骨传导扬声装置一实施方式中电路壳体、导电柱及主控电路板的截面图；

[0027] 图20是图19中H部分的局部放大图；

[0028] 图21是本申请骨传导扬声装置一实施方式中电路壳体与辅助片的局部结构爆炸图；

[0029] 图22是本申请骨传导扬声装置一实施方式中电路壳体与辅助片的局部结构示意图；

[0030] 图23是本申请骨传导扬声装置一实施方式中电路壳体与后挂的局部结构爆炸图；

[0031] 图24是本申请骨传导扬声装置一实施方式中电路壳体与后挂的局部结构截面图；

[0032] 图25是本申请骨传导扬声装置一实施方式中后挂的局部结构示意图。

具体实施方式

[0033] 下面将结合本申请实施例中的附图，对本申请实施例中的技术方案进行清楚、完整地描述，显然，所描述的实施例仅仅是本申请一部分实施例，而不是全部实施例。基于本申请中的实施例，本领域普通技术人员在没有做出创造性的劳动前提下所获得的所有其他实施例，都属于本申请保护的范围。

[0034] 请一并参阅图1至图25，图1至图25绘示了本申请骨传导扬声装置。本申请中的骨传导扬声装置可以为基于骨传导的耳机、MP3或者其它具有扬声功能的装置。具体地，骨传导扬声装置可包括：耳挂10、机芯壳体20、电路壳体30、后挂40，以及耳机芯50、控制电路60、电池70。其中，机芯壳体20与电路壳体30分别设置于耳挂10的两端，后挂40则进一步设置于电路壳体30远离耳挂10的一端。其中，机芯壳体20的数量为两个，分别用于容纳耳机芯50，电路壳体30的数量也为两个，分别用来容纳控制电路60和电池70，后挂40的两端分别连接对应的电路壳体30。

[0035] 其中，耳挂10是指在用户佩戴骨传导扬声装置时，用于环绕并支撑于用户的耳根部位，进而将机芯壳体20及耳机芯50悬挂并固定于用户耳朵预定位置的结构。

[0036] 具体地，耳挂10包括弹性金属丝11、导线12、固定套管13以及设置于弹性金属丝11两端的接插端14和接插端15，还进一步包括保护套管16以及与保护套管16一体成型的壳体护套17。

[0037] 其中，弹性金属丝11主要用于使耳挂10保持为与用户耳朵匹配的形状，并具有一定的弹性，从而能够在用户佩戴时根据用户的耳型以及头型产生一定的弹性形变以适配不

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同耳型以及头型的用户。本实施方式中，弹性金属丝11可以由记忆合金制成，具有良好的变形恢复能力，从而即便是耳挂10受到外力作用产生形变，在外力去除时，仍然能够恢复至原来的形状以能够继续为用户所使用，从而延长骨传导扬声装置的使用寿命。当然，在其它实施方式当中，弹性金属丝11也可以由非记忆合金制成。

[0038] 导线12可用于与耳机芯50以及控制电路60、电池70等进行电连接，以为耳机芯50的工作进行电量供应以及数据传输。

[0039] 固定套管13用于将导线12固定于弹性金属丝11上。具体地，固定套管13的数量可以为一个或者多个，具体可根据实际需求而定。本实施方式中，固定套管13为至少两个，至少两个固定套管13可沿弹性金属丝11以及导线12的走向而间隔设置，并通过包裹设置在导线12以及弹性金属丝11的外围而将导线12固定于弹性金属丝11上。

[0040] 接插端14和接插端15可由硬质材料，如塑胶等制成。本实施方式中，在制作该接插端14和接插端15时，可以分别以注塑的方式将二者形成于弹性金属丝11的两端。在其它实施方式中，也可以先对接插端14和接插端15分别进行注塑，并在注塑时分别预留与弹性金属丝11端部的连接孔，从而在注塑完成后，通过连接孔而将该接插端14和接插端15分别插接在弹性金属丝11的对应的端部，或者并通过粘接的方式进行固定均可。

[0041] 需要指出的是，本实施方式中，接插端14和接插端15可以不直接注塑形成在导线12的外围，而是在注塑时避开导线12。具体地，可以在注塑接插端14和接插端15时，对位于弹性金属丝11两端的导线12进行固定，以远离接插端14和接插端15的位置，并进一步在接插端14和接插端15上分别设置第一走线通道141和第二走线通道151，以在注塑完成后，将导线12沿第一走线通道141和第二走线通道151延伸设置。具体地，在形成第一走线通道141和第二走线通道151后，可将导线12以穿线的方式穿入该第一走线通道141和第二走线通道151。

[0042] 当然，在其它实施方式中，也可以根据实际情况，将接插端14和接插端15直接注塑在导线12的外围，此处不做具体限定。

[0043] 具体地，在一实施方式中，第一走线通道141可包括第一走线槽1411和连通第一走线槽1411的第一走线孔1412。其中，第一走线槽1411连通接插端14的侧壁面设置，第一走线孔1412的一端与第一走线槽1411的一端连通，另一端与接插端14的外端面连通。接插端14处的导线12沿第一走线槽1411和第一走线孔1412延伸并外露于接插端14的外端面，以进一步与其它结构连接。

[0044] 相应地，第二走线通道151可包括第二走线槽1511和连通第二走线槽1511的第二走线孔1512。其中，第二走线槽1511连通接插端15的侧壁面设置，第二走线孔1512的一端与第二走线槽1511的一端连通，另一端与接插端15的外端面连通。接插端15处的导线12沿第二走线槽1511和第二走线孔1512延伸并外露于接插端15的外端面，以进一步与其它结构连接。

[0045] 其中，接插端14的外端面是指接插端14远离接插端15的一端的端面；相应地，接插端15的外端面是指接插端15远离接插端14的一端的端面。

[0046] 进一步地，保护套管16可注塑形成于弹性金属丝11、导线12、固定套管13、接插端14和接插端15的外围，从而将保护套管16分别与弹性金属丝11、导线12、固定套管13、接插端14和接插端15固定连接，而无需将保护套管16单独注塑形成后再进一步套装在弹性金属

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丝11以及接插端14、接插端15的外围，从而能够简化制作及装配工序，且通过这种方式，能够使得保护套管16的固定更加牢靠、稳定。

[0047] 进一步地，在成型保护套管16时，同时与该保护套管16一体成型有设置于靠近接插端15一侧的壳体护套17。

[0048] 其中，壳体护套17可与保护套管16一体成型而成为一整体，电路壳体30可通过与接插端15的接插固定而连接设置在耳挂10的一端，壳体护套17则可进一步以套装的方式包覆于在电路壳体30的外围。

[0049] 其中，保护套管16和壳体护套17可以由具有一定弹性的软质材料制成，例如软质的硅胶、橡胶等。

[0050] 具体地，在制造骨传导扬声装置的耳挂10时，可通过如下步骤实现：

[0051] 步骤S101：利用固定套管13将导线12固定于弹性金属丝11上，其中在弹性金属丝11的两端预留出注塑位；

[0052] 具体地，可以先将弹性金属丝11与导线12按照预设的方式，如并排放置在一起，然后，将固定套管13进一步套设在导线12与弹性金属丝11的外围，从而将导线12固定在弹性金属丝11上。

[0053] 其中，由于弹性金属丝11的两端还需要注塑接插端14和接插端15，因此，在固定时，弹性金属丝11的两端不能被固定套管13完全包裹，而需预留出对应的注塑位，以供接插端14和接插端15注塑占用。

[0054] 步骤S102：在弹性金属丝11的两端的注塑位上分别注塑接插端14和接插端15，其中接插端14和接插端15分别设置有第一走线通道141和第二走线通道151；

[0055] 步骤S103：将导线12设置成沿第一走线通道141和第二走线通道151延伸；

[0056] 具体地，此处可在接插端14和接插端15成型完成后，进一步通过手动或者通过机器将导线12的两端分别穿入第一走线通道141和第二走线通道151。其中，导线12位于第一走线通道141和第二走线通道151之间的部分由固定套管13固定于弹性金属丝11上。

[0057] 步骤S104：在弹性金属丝11、导线12、固定套管13、接插端14和接插端15的外围注塑形成保护套管16。

[0058] 在一实施方式中，在执行步骤S104时，进一步以注塑的方式形成与接插端15外围的保护套管16一体成型的壳体护套17。

[0059] 需要指出的是，在其它实施方式中，也可以在安装固定套管13时先不设置导线12，而在接插端14和接插端15注塑之后，再进一步设置导线12，具体步骤如下：

[0060] 步骤S201：将固定套管13套设于弹性金属丝11上，其中在弹性金属丝11的两端预留出注塑位；

[0061] 步骤S202：在弹性金属丝11的两端的注塑位上分别注塑接插端14和接插端15，其中接插端14和接插端15分别设置有第一走线通道141和第二走线通道151；

[0062] 步骤S203：将导线12穿设于固定套管13的内部，以利用固定套管13将导线12固定于弹性金属丝11上，并进一步将导线12设置成沿第一走线通道141和第二走线通道151延伸。

[0063] 需要指出的是，通过这种方式，能够避免在对接插端14和接插端15注塑时受到导线12的干扰，从而有利于成型的顺利进行。

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[0064] 其中，本实施方式，以及上述实施方式中方法所涉及到的弹性金属丝11、导线12、固定套管13、接插端14、接插端15与保护套管16的结构、作用以及形成方式等均与上述实施方式中的相同，相关详细内容请参见上述实施方式，此处不再赘述。

[0065] 在一实施方式中，机芯壳体20可用于容纳耳机芯50，并与接插端14接插固定。其中，耳机芯50和机芯壳体20的数量均为两个，分别对应用户的左耳和右耳。

[0066] 具体地，机芯壳体20可以与接插端14通过插接、卡接等方式连接，以将机芯壳体20与耳挂10固定在一起。也就是说，本实施方式中，耳挂10与机芯壳体20可先分别成型，然后再进一步装配在一起，而不是将二者一体直接成型。

[0067] 通过这种方式，可以采用各自对应的模具对耳挂10和机芯壳体20分别成型，而无需采用同一个较大尺寸的模具将二者一体成型，从而可减小模具的尺寸，以降低模具的加工难度，以及成型难度；另外，由于耳挂10和机芯壳体20分别采用不同的模具加工，在生产制造过程中，在需要对耳挂10或机芯壳体20中的某一个的形状或者构造进行调整时，仅调整该结构对应的模具即可，而无需对另外一个结构的模具进行调整，从而能够降低生产成本。

[0068] 当然，在其它实施方式当中，也可以根据情况而使耳挂10与机芯壳体20通过一体成型得到。

[0069] 在一实施方式中，机芯壳体20设置有与机芯壳体20的外端面21连通的接插孔22，接插孔22的内侧壁上设置有止挡块23。

[0070] 其中，机芯壳体20的外端面21是指机芯壳体20朝向耳挂10的端面。接插孔22用于为耳挂10的接插端14插入机芯壳体20提供容置空间，以便进一步实现接插端14与机芯壳体20的接插固定。

[0071] 止挡块23可以由接插孔22的内侧壁沿垂直于该内侧壁的方向凸出形成。具体地，止挡块23可以为多个间隔设置的块状凸起，或者也可以为沿接插孔22内侧壁的环状凸起，此处不做具体限定。

[0072] 其中，接插端14包括插入部142和两个弹性卡勾143。

[0073] 具体地，插入部142至少部分插入于接插孔22内并抵接于止挡块23的外侧面231上。其中，插入部142的外侧壁的形状与接插孔22的内侧壁的形状匹配，以使得插入部142至少部分插入于接插孔22内时，使得插入部142的外侧壁与接插孔22的内侧壁抵接。

[0074] 止挡块23的外侧面231是指止挡块23朝向耳挂10设置的一侧面。插入部142可进一步包括一朝向机芯壳体20的端面1421，该端面1421可与止挡块23的外侧面231匹配，从而在插入部142至少部分插入于接插孔22内时，插入部142的端面1421与止挡块23的外侧面231抵接。

[0075] 具体地，机芯壳体20的接插孔22的沿垂直于接插端14相对于机芯壳体20的插入方向上的截面形状可为椭圆环形或近椭圆环形，对应地，插入部142的横截面可以为与接插孔22匹配的近椭圆形，当然，二者的形状还可以为其它，具体可根据实际需求进行设置。

[0076] 进一步地，两个弹性卡勾143可沿垂直于插入方向并排并间隔且对称设置于插入部142朝向机芯壳体20内部的一侧。其中，每个弹性卡勾143可分别包括梁部1431和勾部1432，梁部1431与插入部142朝向机芯壳体20的一侧连接，勾部1432设置在梁部1431远离插入部142的一端，并沿垂直于插入方向延伸。进一步地，每个勾部1432设置有连接平行于插

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入方向的侧面与远离插入部142的端面的过渡斜面14321。

[0077] 在耳挂10与机芯壳体20的安装过程当中，接插端14由接插孔22逐渐进入机芯壳体20内部，在到达止挡块23的位置时，两个弹性卡勾143的勾部1432会受到止挡块23的阻挡，在外部推力的作用下，止挡块23逐渐挤压勾部1432的过渡斜面14321而使得两个弹性卡勾143发生弹性形变而彼此并拢，在过渡斜面14321通过止挡块23而到达止挡块23靠近机芯壳体20内部的一侧时，弹性卡勾143因失去止挡块23的阻挡而弹性回复，并卡置于止挡块23朝向机芯壳体20内部的内侧面上，从而将止挡块23卡置于接插端14的插入部142和勾部1432之间，进而实现机芯壳体20与接插端14的接插固定。

[0078] 其中，在一实施方式中，在机芯壳体20与接插端14接插固定后，插入部142部分插入于接插孔22内，且在插入部142的外露部分呈阶梯状设置，进而形成与机芯壳体20的外端面21间隔设置的环形台面1422。

[0079] 需要指出的是，插入部142的外露部分是指插入部142外露于机芯壳体20的部分，具体地，可以是指外露于机芯壳体20且靠近机芯壳体20外端面的部分。

[0080] 其中，环形台面1422可以与机芯壳体20的外端面21相对设置，且二者之间的间隔可以是指沿接插方向间隔以及沿垂直于接插方向的间隔。

[0081] 进一步地，保护套管16延伸至环形台面1422朝向机芯壳体20的外端面21的一侧，并在机芯壳体20的接插孔22与接插端14接插固定时，填充于环形台面1422与机芯壳体20的外端面21之间的间隔内，并与机芯壳体20弹性抵接，从而使得外部液体难以从接插端14与机芯壳体20之间的接合处进入机芯壳体20内部，进而实现接插端14与接插孔22之间的密封，以保护机芯壳体20内部的耳机芯50等，从而能够提高对骨传导扬声装置的防水效果。

[0082] 具体地，在一实施方式当中，保护套管16在环形台面1422朝向机芯壳体20的外端面的21一侧形成一环形抵接面161。其中，该环形抵接面161为保护套管16朝向机芯壳体20一侧的端面。

[0083] 进一步地，保护套管16还包括位于该环形抵接面161内部且相对于环形抵接面161凸出设置的环形凸台162。具体地，该环形凸台162具体形成于环形抵接面161朝向接插端14的一侧，并相对于该环形抵接面161沿朝向机芯壳体20的方向凸出设置，进一步地，该环形凸台162还可直接形成于环形台面1422的外围，并覆盖该环形台面1422。

[0084] 进一步地，机芯壳体20包括用于连接机芯壳体20的外端面21和接插孔22的内侧壁的连接斜面24。其中，该连接斜面24具体为机芯壳体20的外端面21与接插孔22的内侧壁之间的过渡面，该连接斜面24与机芯壳体20的外端面21和接插孔22的内侧壁均不在同一平面上。其中，该连接斜面24可以为平面，或者也可以根据实际需求而设置成曲面，或者其它形状，此处不做具体限定。

[0085] 具体地，在机芯壳体20与接插端14接插固定时，环形抵接面161和环形凸台162分别与机芯壳体20的外端面和连接斜面24弹性抵接。

[0086] 需要指出的是，由于机芯壳体20的外端面21和连接斜面24不在同一平面上，从而使得保护套管16与机芯壳体20之间的弹性抵接处不位于同一平面上，从而使得外部液体难以由保护套管16与机芯壳体20之间进入机芯壳体20以进一步进入耳机芯50，从而能够提高骨传导扬声装置的防水效果，以对内部功能结构起到保护作用，进而延长骨传导扬声装置的使用寿命。

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